United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Michigan Department of Agriculture; Michigan Agricultural Experiment Station; Michigan State University, Cooperative Extension Service; United States Department of the Interior, Fish and Wildlife Service; Forest Service; and Michigan Technological University

Soil Survey of Schoolcraft County, Michigan

How To Use This Soil Survey

General Soil Map

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

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

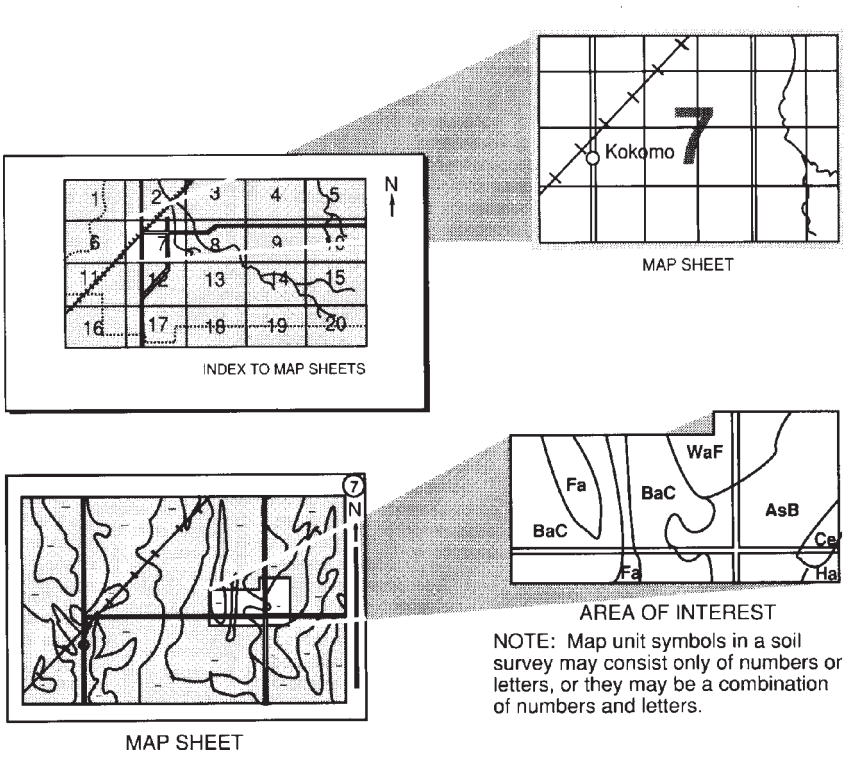
Detailed Soil Maps

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

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

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

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



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

National Cooperative Soil Survey

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. This survey was made cooperatively by the Natural Resources Conservation Service; the Michigan Agricultural Experiment Station; the United States Department of Agriculture, Forest Service; the United States Department of the Interior, Fish and Wildlife Service; the Michigan Department of Agriculture; Michigan Technological University; and Michigan State University, Cooperative Extension Service. The survey is part of the technical assistance furnished to the Schoolcraft Conservation District and other county agencies. Financial assistance was provided by the Schoolcraft County Board of Commissioners.

Major fieldwork for this soil survey was completed in 2005. Soil names and descriptions were approved in 2006. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2005. The most current official data are available on the Internet.

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

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Foreword

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. The surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

Soil surveys are designed for many different users. Farmers, foresters, and agronomists can use the surveys 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 surveys 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 surveys to help them understand, protect, and enhance the environment.

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

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

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

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Soil Survey of Schoolcraft County, Michigan

By Greg Whitney and Joseph K. Calus

Fieldwork by Matt Bromley, Joseph K. Calus, Dennis J. Rodacker, Steve Rodock, Daniel J. Wing, and Greg Whitney, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with the Michigan Department of Agriculture; the Michigan Agricultural Experiment Station; Michigan State University, Cooperative Extension Service; United States Department of the Interior, Fish and Wildlife Service; United States Department of Agriculture, Forest Service; and Michigan Technological University

Schoolcraft County is in the south-central part of the Upper Peninsula of Michigan (fig. 1). It is bordered by Alger County on the north, Delta and Alger Counties on the west, Luce and Mackinac Counties on the east, and Lake Michigan on the south. It has an area of 781,497 acres, or about 1,219 square miles. The city of Manistique is the county seat. It is in the south-central part of the county and had a population of about 3,500 in 2000. About 72 percent of the county is forested. Forest products, recreation, and tourism are the main economic enterprises (Schoolcraft County, 2003).

This survey updates the soil survey of Schoolcraft County published in 1939 (Foster and others, 1939). It provides additional information and has larger maps, which show the soils in greater detail.

General Nature of the Survey Area

This section provides some general information about Schoolcraft County. It describes climate, history and development, physiography, and lakes and rivers.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Manistique and at the Seney National Wildlife Refuge in the period from 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 18.4 degrees F at Manistique and 18.1 degrees at the Seney National Wildlife Refuge. The average daily minimum temperature is 9.5 degrees at Manistique and 8.8 degrees at the Seney National Wildlife Refuge. The lowest temperature on record is -33 degrees at Manistique (February 4, 1970) and -41 at the Seney National Wildlife Refuge (February 17, 1979). In summer, the average temperature is 62.2 degrees at Manistique and 64.4 degrees at the Seney National Wildlife Refuge. The average daily maximum temperature is 72.4

Figure 1.—Location of Schoolcraft County in Michigan.

degrees at Manistique and 77.2 degrees at the Seney National Wildlife Refuge. The highest temperature on record is 101 degrees at Manistique (August 19, 1955) and 100 degrees at the Seney National Wildlife Refuge (July 30, 1975).

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

The average annual total precipitation is 30.10 inches at Manistique and 31.77 inches at the Seney National Wildlife Refuge. About 13 inches, or roughly 42 percent of the total precipitation, usually falls in June through September. The growing season for most crops falls within this period. The heaviest 1-day precipitation on record is 3.85 inches at Manistique on September 7, 1985, and 4.40 inches at the Seney National Wildlife Refuge on July 19, 1975. Thunderstorms occur on about 29 days each year, and most occur between June and September.

Average seasonal snowfall increases northward from the Lake Michigan shoreline into the upper part of the county. The average seasonal snowfall at Manistique is about 67 inches, and the average at the Seney National Wildlife Refuge is about 121 inches. The greatest recorded snow depth at any one time is 61 inches at Manistique (February 5, 1997) and 42 inches at the Seney National Wildlife Refuge (March 5, 1977). On the average, 103 days per year have at least 1 inch of snow on the ground at Manistique. At the Seney National Wildlife Refuge, an average of 129 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record is 24 inches at Manistique (December 12, 1989) and 14 inches at the Seney National Wildlife Refuge (March 3, 1985).

The average relative humidity in midafternoon is about 55 percent in May and nearly 75 percent in December. Humidity is higher at night, and the average at dawn is about 80 percent in most months; it is nearly 90 percent from June to September. The sun shines 60 percent of the time possible in summer and 34 percent in winter. The prevailing wind is from the northwest for most of the year, but it is from the south during much of the summer. Average windspeed is highest, around 10 miles per hour, during March and April.

History and Development

The early inhabitants of this survey area were members of the Ottawa tribe. Many of these Native Americans settled in the Indian Lake area and around the mouth of the Manistique River. Fur trading was commercially prominent from the 1600s to the 1840s. In 1832, Father Baraga established the first Catholic church for Native Americans on the shores of Indian Lake, on a point called Wawaushnosh.

Schoolcraft County was established in 1871 when it was separated from Marquette County. The county was named after Henry Rowe Schoolcraft, who was an Indian agent. The original county seat was located west of the city of Munising, in Onota Township. Later, in 1884, Schoolcraft County was reorganized and the county seat was moved to its present location in Manistique.

As was typical in many of the counties in this part of Michigan, lumbering formed the dominant economic base from around 1850 to the 1890s. Many small communities, such as Seney, became boom towns and accommodated the increase in population resulting from the logging industry. When the importance of logging began to subside, many residents stayed in the area and farmed or started businesses that relied on tourism.

Physiography

Schoolcraft County is in an area that was glaciated during the Pleistocene epoch, and many of its physiographic features were formed during the period of glaciation (see Landform Map). Extensive sandy outwash plains mark areas where sediments were deposited in the glacial Great Lakes, which inundated much of the county at the close of the glacial epoch. Highlands and ridges in the vicinity of Hiawatha, Steuben, Cooks, and Blaney Park occupy areas where till was deposited in the form of moraines directly by the glacial ice. These areas are as much as 50 to 90 feet above the surrounding lowlands. Because much of the drift was deposited in water and subjected to the currents and wave action of the glacial lakes, the relief is somewhat subdued and the distinguishing features of the various types of deposits are not easily recognized.

The most prominent physiographic feature in the county is related to the bedrock structure. This feature, the Niagara cuesta, is an asymmetrical ridge of resistant limestone and dolomite having a steep northern escarpment. It extends across the county in an arc about 10 miles inland and roughly parallels the Lake Michigan shoreline. In places it is as much as 90 feet above the adjacent landscape.

The bedrock geology of Schoolcraft County consists of limestone, dolomite, shale, sandstone, and gypsum. These rocks were deposited in the shallow seas that covered the Michigan basin during most of the Paleozoic era. The limestone and dolomite are in the southern part of the county and in many places are exposed at the surface. A quarry in the southeast corner of the county is in the Engadine dolomite formation.

Schoolcraft County was glaciated many times during the Pleistocene, but almost all traces of glaciation had been removed by the Superior Lobe re-advance of the Wisconsin ice sheet. The present topography of the county is a result of glacial deposits, erosion, and glacial lake processes (Smith, 1936). Most of the survey area

was heavily influenced by wave action during the lowering of the glacial lake levels and by subsequent wind activity shortly after the lakes receded.

The Superior Lobe re-advance of the Wisconsin ice sheet left its mark on Schoolcraft County in the form of three strongly developed moraines—the Cooks, Newberry, and Munising moraines. The Cooks moraine is the oldest and has the Niagara cuesta along its northern edge. It is in the southwestern part of the county along the Delta County line. The Cooks moraine is characterized by coarse textured till that contains more limestone and dolomite fragments than the till in areas to the north. The soils on the Cooks moraine are more alkaline than the soils in areas to the north.

The Newberry moraine is broken into segments called Blaney Park, Hiawatha, and Steuben. The segments are separated by lowlands and swamps. These moraines have all been influenced by wave action from glacial Lake Algonquin. The Blaney Park segment is in the east-central part of the county and is characterized by a mixture of sandy and loamy soils. The Hiawatha segment is just north of Manistique and consists dominantly of sandy outwash soils. The loamy till soils occur only around the Smith Lake area; on the rest of the moraine, they are overlain by an overwash of sand. The Steuben segment is in the northwestern part of the county and is characterized by hilly terrain with many lakes. This segment has the highest elevation, and only the lower elevations show wave action from glacial Lake Algonquin. The Steuben segment consists of sandy soils with some loamy deposits that generally have an overburden of sand.

The Munising moraine is the final evidence of ice in the county. Only the southern edge of the moraine dips into Schoolcraft County at its northern boundary; therefore, this area exhibits little of the normal characteristics associated with moraines. The area has been modified by the waters of Lake Algonquin and as a result is a subdued landscape of sandy sediments (Smith, 1936).

There are two bedrock-controlled ground moraines in the southern part of the county. They are characterized by loamy soils and by limestone bedrock that is near the surface or exposed in many areas.

More than 75 percent of Schoolcraft County is covered by some type of outwash deposit (Vanlier, 1959). These outwash deposits include outwash plains, pitted outwash, perched outwash plains, and outwash fans. Most of the outwash areas are at an elevation of less than 870 feet and have been modified by waters of Lake Algonquin. In the northern part of the county is a pitted outwash plain that formed from detached ice blocks from the nearby moraine. In the central part of the county is a large outwash plain that is mostly organic deposits and wet mineral soils with sand dunes and ridges. The Seney National Wildlife Refuge is in this area, and land management centers around wetlands and waterfowl.

Beach ridges and dunes are below the Lake Nipissing High Stage elevation of about 650 feet (Petty and Delcourt, 1995). These beach ridges and dunes have formed over the last 2,500 years and roughly parallel the shoreline of Lake Michigan.

Lakes and Rivers

Schoolcraft County has about 320 inland lakes and five major rivers. The largest lakes are Indian Lake (8,000 acres), McDonald Lake (1,600 acres), Gulliver Lake (836 acres), Ross Lake (196 acres), and Big Bass Lake (294 acres).

The major rivers are the Manistique River, Driggs River, Fox River, Creighton River, and Indian River and their respective branches. The Manistique River flows through the southern part of the county in an east-to-west direction. The Creighton, Fox, Driggs, and Indian Rivers all flow from north to south. These rivers all flow into the Manistique River. The Manistique River basin makes up an area of about 1,400 square miles.

How This Survey Was Made

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

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

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

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

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

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over

long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

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

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

Some soils occur only as minor components in this survey area and are not described in detail in this publication. More information about these soils is available from the local office of the Natural Resources Conservation Service.

Survey Procedures

The general procedures followed in making this survey are described in the National Soil Survey Handbook of the Natural Resources Conservation Service (USDA/NRCS, National Soil Survey Handbook). An Ecological Classification System (Driscoll and others, 1984) was used in conjunction with the National Soil Survey Handbook to prepare the soil survey on the Forest Service lands within the administrative boundary of the Hiawatha National Forest.

The soil survey maps made for conservation planning prior to the start of the project were among the references used. Before the actual fieldwork was begun, preliminary boundaries of slopes and landforms were plotted stereoscopically on 1:24,000 leaf-off aerial photographs. USGS topographic maps at a scale of 1:24,000 were used to help the soil scientists relate land and image features.

A reconnaissance was made by pickup truck before the soil scientists traversed the surface on foot. In areas where the soil pattern is very complex, traverses and random observations were spaced as closely as 200 yards. In areas where the soil pattern is relatively simple, traverses were about one-fourth mile apart.

As they traversed the surface, the soil scientists divided the landscape into segments. For example, a hillside was separated from a swale and a gently sloping ridgetop from a very steep side slope.

Observations of such items as landforms, blown-down trees, vegetation, and roadbanks were made without regard to spacing. Soil boundaries were determined on the basis of soil examinations, observations of the landscape and vegetation, and photo interpretation. The soil material was examined with the aid of a hand auger or a spade to a depth of about 7 feet. The pedons described as typical were observed and studied in pits that were dug with shovels or a backhoe.

Notes were taken on the composition of map units during the first years of the project. These notes were supplemented with additional notes as mapping progressed and as the composition of individual map units was determined.

Samples for chemical and physical analyses were taken from representative sites of some soils in the survey area (USDA/NRCS, 1996). The analyses were made by the National Soil Survey Laboratory, Lincoln, Nebraska. The results of the studies can be obtained on request from the laboratory or from the State office of the Natural Resources Conservation Service in East Lansing, Michigan.

After the completion of soil mapping on aerial photographs, map unit delineations were transferred by hand to clear mylars for scanning purposes. Cultural features were recorded from observations of the maps and the landscape.

In the Hiawatha National Forest, before ecological units were mapped, information was collected regarding the climate, geology, soils, hydrology, and vegetation in the survey area. Research techniques were used in mid and late successional stands to collect information on vegetative and soil components in areas of uplands. Samples were not collected in early successional aspen stands, young stands, plantations, or stands disturbed by recent harvest or fires. The results of the research were used in developing ecological map units that are defined on the basis of both abiotic and biotic landscape characteristics. Abiotic landscape characteristics are those that are generally stable over time, such as climate and landforms. Biotic characteristics are those that are generally unstable over time, such as vegetation.

A pre-mapping reconnaissance was conducted in the survey area before actual field inventory was begun. Important results of the reconnaissance activities include a listing of the expected ecological units that would be mapped in the area, the definition of features differentiating the units, and a set of specific sites in the Hiawatha National Forest where detailed data had been collected and analyzed in the laboratory for quality control.

Following reconnaissance, the mapping personnel traversed the landscape, evaluated the components of the current ecosystems, determined and observed ecological unit boundaries in the field, and delineated preliminary map units on aerial photographs. During field mapping, stereo images, photo-tones, and photo colors were used to delineate landscape features on the aerial photographs. Some important characteristics used by the field personnel to evaluate the context of an area included water table levels, soil texture and color, drainage systems, geologic indicators, and interpretation of vegetative species groups.

Mappers typically inventoried 300 to 500 acres per day. They performed detailed evaluations and recorded notes on 10 to 15 specific sites. These sites were strategically selected for the examination of landscape features and the collection of data on overstory, understory, ground flora, forest floor, soil, substratum, and ground water for documenting ecological units. Profiles of sandy soils were described to a depth of 15 feet. The presence of textural bands has been shown to have a significant influence on tree growth and species composition (Hannah and Zahner, 1970; Host and others, 1988). Thus, recording the presence, absence, or intensity of deep-lying textural bands was an important part of the sampling and inventory scheme. The collected data are a permanent part of the forest records available at the Hiawatha National Forest supervisor's office.

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. These broad areas are called associations. Each association 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 association 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 association differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Soils on Outwash Plains

1. Markey-Deford-Rubicon Association

Very deep, level to very steep, very poorly drained and poorly drained mucky soils and excessively drained sandy soils

Setting

Landform: Outwash plains
Slope range: 0 to 60 percent

Composition

Extent of the association: 42 percent of the survey area
Extent of the soils in the association:
- Markey soils—45 percent
- Deford soils—10 percent
- Rubicon soils—10 percent
- Soils of minor extent—35 percent

Soil Properties and Qualities

Markey
Depth class: Very deep
Drainage class: Very poorly drained
Parent material: Organic deposits over sand
Texture of the surface layer: Mucky peat
Slope class: Level

Deford
Depth class: Very deep
Drainage class: Poorly drained

Parent material: Sandy glaciofluvial deposits
Texture of the surface layer: Muck
Slope class: Level

Rubicon
Depth class: Very deep
Drainage class: Excessively drained
Parent material: Sandy glaciofluvial deposits
Texture of the surface layer: Sand
Slope class: Level to very steep

Soils of Minor Extent

- Proper soils in nearly level areas
- Au Gres and Meehan soils in level areas
- Dawson soils in landscape positions similar to those of the Markey soils
- Kinross soils in landscape positions similar to those of the Deford soils

Use and Management

Land use: Forestland
Major management concerns: Equipment limitations, erosion hazard, seedling mortality

2. Rubicon-Dawson Association

Very deep, level to very steep, excessively drained sandy soils and very poorly drained organic soils

Setting

Landform: Outwash plains
Slope range: 0 to 60 percent

Composition

Extent of the association: 13 percent of the survey area
Extent of the soils in the association:
Rubicon soils—65 percent
Dawson soils—20 percent
Soils of minor extent—15 percent

Soil Properties and Qualities

Rubicon
Depth class: Very deep
Drainage class: Excessively drained
Parent material: Sandy glaciofluvial deposits
Texture of the surface layer: Sand
Slope class: Level to very steep

Dawson
Depth class: Very deep
Drainage class: Very poorly drained
Parent material: Organic deposits over sand
Texture of the surface layer: Peat
Slope class: Level

Soils of Minor Extent

- Wallace and Kalkaska soils in landscape positions similar to those of the Rubicon soils
- Spot soils in depressions
- Lupton and Markey soils in landscape positions similar to those of the Dawson soils

Use and Management

Land use: Forestland
Major management concerns: Equipment limitations, erosion hazard, seedling mortality

3. Dawson-Rousseau Association

Very deep, level to very steep, very poorly drained organic soils and excessively drained sandy soils

Setting

Landform: Outwash plains
Slope range: 0 to 60 percent

Composition

Extent of the association: 4 percent of the survey area
Extent of the soils in the association:
Dawson soils—70 percent
Rousseau soils—15 percent
Soils of minor extent—15 percent

Soil Properties and Qualities

Dawson
Depth class: Very deep
Drainage class: Very poorly drained
Parent material: Organic deposits over sand
Texture of the surface layer: Peat
Slope class: Level

Rousseau
Depth class: Very deep
Drainage class: Excessively drained
Parent material: Sandy glaciofluvial and eolian deposits
Texture of the surface layer: Fine sand
Slope class: Level to very steep

Soils of Minor Extent

- Finch soils in nearly level areas
- Kinross soils in depressions

Use and Management

Land use: Forestland
Major management concerns: Equipment limitations, erosion hazard, seedling mortality

4. Kalkaska Association

Very deep, nearly level to very steep, somewhat excessively drained sandy soils

Setting

Landform: Outwash plains
Slope range: 0 to 60 percent

Composition

Extent of the association: 16 percent of the survey area
Extent of the soils in the association:
Kalkaska soils—75 percent
Soils of minor extent—25 percent

Soil Properties and Qualities

Kalkaska
Depth class: Very deep
Drainage class: Somewhat excessively drained
Parent material: Sandy glaciofluvial deposits
Texture of the surface layer: Sand

Soils of Minor Extent

- Finch and Paquin soils in nearly level and gently sloping areas
- Carbondale and Kinross soils in depressions

Use and Management

Land use: Forestland
Major management concerns: Equipment limitations, seedling mortality

Soils on Ground Moraines and Bedrock-Controlled Ground Moraines

5. Trenary-McMillan Association

Very deep, nearly level to steep, well drained, sandy and loamy soils

Setting

Landform: Ground moraines
Slope range: 0 to 35 percent

Composition

Extent of the association: 1 percent of the survey area
Extent of the soils in the association:
Trenary soils—40 percent
McMillan soils—30 percent
Soils of minor extent—30 percent

Soil Properties and Qualities

Trenary
Depth class: Very deep
Drainage class: Well drained
Parent material: Loamy till

Texture of the surface layer: Fine sandy loam
Slope class: Nearly level to strongly sloping

McMillan
Depth class: Very deep
Drainage class: Well drained
Parent material: Loamy and sandy glaciofluvial sediments
Texture of the surface layer: Fine sandy loam
Slope class: Nearly level to steep

Soils of Minor Extent

- Lupton soils in depressions
- Growton soils in nearly level areas
- Graveraet soils in gently sloping areas
- Kalkaska and Menominee soils in landscape positions similar to those of the Trenary soils

Use and Management

Land use: Forestland
Major management concerns: Erosion hazard, plant competition

6. Lupton-McMillan-Graveraet Association

Very deep, level to steep, very poorly drained organic soils and moderately well drained and well drained, loamy and sandy soils

Setting

Landform: Ground moraines
Slope range: 0 to 35 percent

Composition

Extent of the association: 4 percent of the survey area
Extent of the soils in the association:
Lupton soils—30 percent
McMillan soils—25 percent
Graveraet soils—20 percent
Soils of minor extent—25 percent

Soil Properties and Qualities

Lupton
Depth class: Very deep
Drainage class: Very poorly drained
Parent material: Organic deposits
Texture of the surface layer: Muck
Slope class: Level

McMillan
Depth class: Very deep
Drainage class: Well drained
Parent material: Loamy and sandy glaciofluvial sediments
Texture of the surface layer: Fine sandy loam
Slope class: Level to steep

Graveraet
Depth class: Very deep

Drainage class: Moderately well drained
Parent material: Loamy till
Texture of the surface layer: Fine sandy loam
Slope class: Nearly level to gently sloping

Soils of Minor Extent

- Kalkaska and Springlake soils in landscape positions similar to those of the McMillan soils
- Annanias soils in nearly level areas
- Dawson, Hendrie, and Spot soils in depressions

Use and Management

Land use: Forestland
Major management concerns: Equipment limitations, erosion hazard, windthrow hazard, plant competition

7. Amadon-Lupton-Ensley Association

Shallow to very deep, level to steep, well drained loamy soils and poorly drained and very poorly drained organic soils

Setting

Landform: Bedrock-controlled ground moraines
Slope range: 0 to 35 percent

Composition

Extent of the association: 10 percent of the survey area
Extent of the soils in the association:
Amadon soils—25 percent
Lupton soils—20 percent
Ensley soils—20 percent
Soils of minor extent—35 percent

Soil Properties and Qualities

Amadon
Depth class: Shallow
Drainage class: Well drained
Parent material: Loamy till
Texture of the surface layer: Sandy loam
Slope class: Nearly level to steep

Lupton
Depth class: Very deep
Drainage class: Very poorly drained
Parent material: Organic deposits
Texture of the surface layer: Muck
Slope class: Level

Ensley
Depth class: Deep
Drainage class: Poorly drained
Parent material: Loamy till
Texture of the surface layer: Muck
Slope class: Level

Soils of Minor Extent

- Longrie, Rubicon, and Trenary soils in landscape positions similar to those of the Amadon soils
- Charlevoix and Ensign soils in nearly level areas

Use and Management

Land use: Forestland
Major management concerns: Equipment limitations, erosion hazard, seedling mortality

8. Munising, calcareous substratum-Carbondale-Greylock Association

Very deep, level to strongly sloping, very poorly drained organic soils and moderately well drained and well drained loamy soils

Setting

Landform: Ground moraines
Slope range: 0 to 15 percent

Composition

Extent of the association: 1 percent of the survey area
Extent of the soils in the association:
Munising soils—30 percent
Carbondale soils—25 percent
Greylock soils—15 percent
Soils of minor extent—30 percent

Soil Properties and Qualities

Munising
Depth class: Very deep
Drainage class: Moderately well drained
Parent material: Loamy till
Texture of the surface layer: Fine sandy loam
Slope class: Nearly level

Carbondale
Depth class: Very deep
Drainage class: Very poorly drained
Parent material: Organic deposits
Texture of the surface layer: Muck
Slope class: Level

Greylock
Depth class: Very deep
Drainage class: Well drained
Parent material: Loamy till
Texture of the surface layer: Fine sandy loam
Slope class: Nearly level to strongly sloping

Soils of Minor Extent

- Blue Lake, Cookson, Escanaba, and Steuben soils in landscape positions similar to those of the Greylock soils

- Au Gres, Charlevoix, and Halfaday soils in nearly level areas
- Deford and Ensley soils in depressions

Use and Management

Land use: Forestland
Major management concerns: Equipment limitations, erosion hazard, windthrow hazard, plant competition

Soils on Disintegration Moraines

9. Kalkaska-Dillingham Association

Very deep, nearly level to very steep, somewhat excessively drained and well drained, sandy soils

Setting

Landform: Disintegration moraines
Slope range: 0 to 70 percent

Composition

Extent of the association: 1 percent of the survey area
Extent of the soils in the association:
Kalkaska soils—50 percent
Dillingham soils—25 percent
Soils of minor extent—25 percent

Soil Properties and Qualities

Kalkaska
Depth class: Very deep
Drainage class: Somewhat excessively drained
Parent material: Sandy glaciofluvial deposits
Texture of the surface layer: Sand
Slope class: Nearly level to very steep

Dillingham
Depth class: Very deep
Drainage class: Well drained
Parent material: Sandy glaciofluvial deposits
Texture of the surface layer: Loamy sand
Slope class: Nearly level to very steep

Soils of Minor Extent

- Dawson, Deford, and Carbondale soils in depressions
- Okeefe, Paquin, and Wallace soils in landscape positions slightly lower than those of the Kalkaska soils

Use and Management

Land use: Forestland
Major management concerns: Equipment limitations, erosion hazard, seedling mortality

Soils on Flood Plains

10. Pelkie-Neconish-Tawas Association

Very deep, level to gently sloping, very poorly drained organic soils and moderately well drained sandy soils

Setting

Landform: Flood plains
Slope range: 0 to 6 percent

Composition

Extent of the association: 2 percent of the survey area
Extent of the soils in the association:
Pelkie soils—30 percent
Neconish soils—25 percent
Tawas soils—15 percent
Soils of minor extent—30 percent

Soil Properties and Qualities

Pelkie
Depth class: Very deep
Drainage class: Moderately well drained
Parent material: Sandy alluvium
Texture of the surface layer: Loamy fine sand
Slope class: Nearly level and gently sloping

Neconish
Depth class: Very deep
Drainage class: Moderately well drained
Parent material: Sandy glaciofluvial deposits
Texture of the surface layer: Fine sand
Slope class: Nearly level and gently sloping

Tawas
Depth class: Very deep
Drainage class: Very poorly drained
Parent material: Organic deposits over sand
Texture of the surface layer: Muck
Slope class: Level

Soils of Minor Extent

- Dawson soils in landscape positions similar to those of the Tawas soils
- Rousseau soils in strongly sloping areas
- Arnheim, Deford, and Spot soils in depressions

Use and Management

Land use: Forestland
Major management concerns: Equipment limitations, erosion hazard, windthrow hazard, plant competition

11. Hiawatha-Meehan-Deford Association

Very deep, level to gently sloping, poorly drained to moderately well drained, sandy soils

Setting

Landform: Flood plains
Slope range: 0 to 6 percent

Composition

Extent of the association: 2 percent of the survey area
Extent of the soils in the association:
Hiawatha soils—30 percent
Meehan soils—20 percent
Deford soils—20 percent
Soils of minor extent—30 percent

Soil Properties and Qualities

Hiawatha
Depth class: Very deep
Drainage class: Moderately well drained
Parent material: Sandy alluvium
Texture of the surface layer: Fine sandy loam
Slope class: Nearly level and gently sloping

Meehan
Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Sandy glaciofluvial deposits
Texture of the surface layer: Loamy sand
Slope class: Nearly level

Deford
Depth class: Very deep
Drainage class: Poorly drained
Parent material: Sandy glaciofluvial deposits
Texture of the surface layer: Muck
Slope class: Level

Soils of Minor Extent

- Rubicon soils in strongly sloping areas
- Duck and Paquin soils in nearly level areas
- Tawas soils in depressions and drainageways

Use and Management

Land use: Forestland
Major management concerns: Equipment limitations, erosion hazard, windthrow hazard, plant competition

Soils on Dunes and Beach Ridges

12. Deford-Tawas-Deer Park Association

Very deep, level to very steep, poorly drained and very poorly drained organic soils and excessively drained sandy soils

Setting

Landform: Dunes and beach ridges
Slope range: 0 to 60 percent

Composition

Extent of the association: 4 percent of the survey area
Extent of the soils in the association:
Deford soils—25 percent
Tawas soils—25 percent
Deer Park soils—20 percent
Soils of minor extent—30 percent

Soil Properties and Qualities

Deford
Depth class: Very deep
Drainage class: Poorly drained
Parent material: Sandy glaciofluvial deposits
Texture of the surface layer: Muck
Slope class: Level

Tawas
Depth class: Very deep
Drainage class: Very poorly drained
Parent material: Organic deposits over sand
Texture of the surface layer: Muck
Slope class: Level

Deer Park
Depth class: Very deep
Drainage class: Excessively drained
Parent material: Sandy deposits
Texture of the surface layer: Sand
Slope class: Strongly sloping to very steep

Soils of Minor Extent

- Wurtsmith soils in gently sloping areas
- Au Gres soils in level areas
- Kinross and Shuberts soils in landscape positions similar to those of the Deford soils
- Dawson soils in depressions

Use and Management

Land use: Forestland
Major management concerns: Equipment limitations, erosion hazard, seedling mortality

Detailed Soil Map Units

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

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

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

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

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

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown

on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, *Deford muck* is a phase of the Deford series.

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

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. *Deer Park-Deford-Tawas complex, 0 to 60 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. *Cathro and Lupton soils* 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.

Michigan soil management groups are given in the descriptions. These groups are based on the dominant texture, the drainage class, and the major management concerns (Mokma, 1982). Additional information is available from the Michigan State University Extension.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

10B—Amadon-Rock outcrop complex, 1 to 6 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:

Amadon and similar soils—65 to 85 percent
Rock outcrop—15 to 35 percent

Typical Profile

Amadon

Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 8 inches; silt loam
Bhs—8 to 10 inches; silt loam
Bs—10 to 15 inches; silt loam
2R—15 inches; bedrock

Soil Properties and Qualities

Amadon

Parent material: Till
Slope: 1 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Available water capacity: About 2.0 inches to a depth of 60 inches
Shrink-swell potential: Low

Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Soil rutting, windthrow hazard, depth to bedrock, rock outcrop

Building site development
Major management concerns: Depth to bedrock

Septic tank absorption fields
Major management concerns: Depth to bedrock

Interpretive Groups

Land capability classification: Amadon—3s
Michigan soil management group: Amadon—Ra
Important farmland classification: Not prime farmland
Hydric soil status: Amadon—not hydric
Habitat type: Amadon—ATD

11B—Kalkaska loamy sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kalkaska and similar soils—85 to 100 percent
Minor components:
Stutts and similar soils—0 to 10 percent
Halfaday and similar soils—0 to 10 percent

Typical Profile

Kalkaska
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 6 inches; loamy sand
Bhs—6 to 8 inches; loamy sand
Bs1—8 to 12 inches; loamy sand
Bs2—12 to 23 inches; sand
BC—23 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.5 inches to a depth of 60 inches
Shrink-swell potential: Low

Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Cropland, pasture, building site development

Cropland
Major management concerns: Water erosion, soil blowing, droughtiness, nutrient loss

Pasture
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: 4a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD

12B—Rubicon sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Rubicon and similar soils—85 to 100 percent
Minor components:
Kinross and similar soils—0 to 10 percent
Au Gres and similar soils—0 to 10 percent

Typical Profile

Rubicon
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low

Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Building site development

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AQV

12D—Rubicon sand, 6 to 15 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Rubicon and similar soils—85 to 100 percent
Minor components:
Kinross and similar soils—0 to 10 percent
Au Gres and similar soils—0 to 10 percent

Typical Profile

Rubicon
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Building site development

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AQV

12E—Rubicon sand, 15 to 35 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Rubicon and similar soils—90 to 100 percent
Minor components:
Kinross and similar soils—0 to 10 percent

Typical Profile

Rubicon
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 15 to 35 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AQV

12F—Rubicon sand, 35 to 60 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Rubicon and similar soils—100 percent

Typical Profile

Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 35 to 60 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AQV

13B—Kalkaska sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kalkaska and similar soils—85 to 100 percent
Minor components:
Finch and similar soils—0 to 10 percent
Paquin and similar soils—0 to 10 percent
Deford and similar soils—0 to 10 percent

Typical Profile

Kalkaska
A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Glaciofluvial deposits, outwash
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Building site development

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

13D—Kalkaska sand, 6 to 15 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kalkaska and similar soils—90 to 100 percent
Minor components:
Deford and similar soils—0 to 5 percent
Wallace and similar soils—0 to 5 percent

Typical Profile

Kalkaska
A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Glaciofluvial deposits, outwash
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Building site development

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

13E—Kalkaska sand, 15 to 35 percent slopes

Setting

Landform: Disintegration moraines, outwash plains

Map Unit Composition

Major components:
Kalkaska and similar soils—100 percent

Typical Profile

A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Glaciofluvial deposits, outwash
Slope: 15 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

13F—Kalkaska sand, 35 to 60 percent slopes

Setting

Landform: Outwash plains, disintegration moraines

Map Unit Composition

Major components:
Kalkaska and similar soils—100 percent

Typical Profile

A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Glaciofluvial deposits, outwash
Slope: 35 to 60 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD

16A—Paquin sand, 0 to 3 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Paquin and similar soils—85 to 100 percent
Minor components:
Finch and similar soils—0 to 10 percent
Garlic and similar soils—0 to 10 percent
Kinross and similar soils—0 to 5 percent

Typical Profile

Paquin
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 12 inches; sand
Bhs—12 to 14 inches; sand
Bhsm—14 to 17 inches; sand
Bsm—17 to 27 inches; sand
BC—27 to 34 inches; sand
C—34 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: 10 to 16 inches to ortstein
Drainage class: Moderately well drained
Available water capacity: About 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, depth to ortstein, severe wetness

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a-h
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D/TMC

17A—Au Gres sand, 0 to 3 percent slopes

Setting

Landform: Outwash plains, lake plains

Map Unit Composition

Major components:
Au Gres and similar soils—90 to 100 percent
Minor components:
Croswell and similar soils—0 to 10 percent
Deford and similar soils—0 to 10 percent

Typical Profile

Au Gres
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 7 inches; sand
Bs—7 to 17 inches; sand
BC—17 to 28 inches; sand
C—28 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 0.5 to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, seasonal wetness

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 4w
Michigan soil management group: 5b
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: TMC-V

18—Kinross muck

Setting

Landform: Depressions on outwash plains, lake plains

Map Unit Composition

Major components:
Kinross and similar soils—85 to 100 percent
Minor components:
Dawson and similar soils—0 to 10 percent
Au Gres and similar soils—0 to 10 percent

Typical Profile

Kinross
Oa—0 to 3 inches; muck
Eg—3 to 14 inches; sand
Bhs—14 to 22 inches; sand
Bs—22 to 35 inches; sand
C—35 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: 6w
Michigan soil management group: 5c-a
Important farmland classification: Not prime farmland
Hydric soil status: Hydric
Habitat type: TTS

19A—Au Gres-Deford complex, 0 to 3 percent slopes

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Au Gres and similar soils—35 to 50 percent
Deford and similar soils—30 to 50 percent
Minor components:
Croswell and similar soils—5 to 15 percent
Rubicon and similar soils—0 to 10 percent

Typical Profile

Au Gres
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 7 inches; sand
Bs—7 to 17 inches; sand
BC—17 to 28 inches; sand
C—28 to 80 inches; sand

Deford
Oa—0 to 4 inches; muck
C—4 to 80 inches; fine sand

Soil Properties and Qualities

Au Gres
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid

Flooding: None
Depth to seasonal high water table: 0.5 to 6.7 feet (April, May)
Ponding: None

Deford
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 5.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Au Gres—seedling mortality, windthrow hazard; Deford—seedling mortality, windthrow hazard, seasonal wetness, severe wetness

Building site development
Major management concerns: Au Gres—cutbanks caving, seasonal wetness; Deford—cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Au Gres—poor filtering capacity, severe wetness; Deford—poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: Au Gres—4w; Deford—5w
Michigan soil management group: Au Gres—5b; Deford—4c
Important farmland classification: Not prime farmland
Hydric soil status: Au Gres—not hydric; Deford—hydric
Habitat type: Au Gres—TMC-V; Deford—FMC

20E—Rousseau-Neconish-Finch complex, 0 to 25 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Rousseau and similar soils—30 to 50 percent
Neconish and similar soils—15 to 40 percent
Finch and similar soils—15 to 25 percent

Minor components:
Spot and similar soils—5 to 15 percent
Dawson and similar soils—0 to 10 percent

Typical Profile

Rousseau
Oi—0 to 1 inch; slightly decomposed plant material
E—1 to 4 inches; fine sand
Bs—4 to 20 inches; fine sand
BC—20 to 33 inches; fine sand
C1—33 to 66 inches; fine sand
C2—66 to 80 inches; sand

Neconish
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 8 inches; fine sand
Bs—8 to 21 inches; fine sand
BC—21 to 32 inches; fine sand
C—32 to 80 inches; fine sand

Finch
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 11 inches; fine sand
Bsm—11 to 42 inches; fine sand
C—42 to 80 inches; fine sand

Soil Properties and Qualities

Rousseau
Parent material: Eolian deposits
Slope: 6 to 25 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Neconish
Parent material: Outwash, sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Finch
Parent material: Outwash
Slope: 0 to 3 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: 7 to 13 inches to ortstein
Drainage class: Somewhat poorly drained
Available water capacity: About 2.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Rousseau—erosion, sandy textures, seedling mortality, slope; Neconish—seedling mortality; Finch—seedling mortality, windthrow hazard

Building site development
Major management concerns: Rousseau—cutbanks caving, slope; Neconish—cutbanks caving, seasonal wetness; Finch—cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Rousseau—slope, poor filtering capacity; Neconish—poor filtering capacity, seasonal wetness; Finch—poor filtering capacity, depth to ortstein, severe wetness

Interpretive Groups

Land capability classification: Rousseau—6e; Neconish—4s; Finch—4w
Michigan soil management group: Rousseau—5a; Neconish—5.3a; Finch—5b-h
Important farmland classification: Not prime farmland
Hydric soil status: Rousseau—not hydric; Neconish—not hydric; Finch—not hydric
Habitat type: Rousseau—AQV; Neconish—AQV; Finch—TMC-V

21B—Garlic sand, 0 to 6 percent slopes

Setting

Landform: Disintegration moraines, pitted outwash plains

Map Unit Composition

Major components:
Garlic and similar soils—85 to 100 percent
Minor components:
Finch and similar soils—0 to 10 percent
Okeefe and similar soils—0 to 10 percent

Typical Profile

Garlic
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 9 inches; sand
Bhs—9 to 11 inches; sand
Bs—11 to 20 inches; sand

BC—20 to 29 inches; sand
C—29 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 0 to 6 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

21D—Garlic sand, 6 to 15 percent slopes

Setting

Landform: Disintegration moraines, pitted outwash plains

Map Unit Composition

Major components:
Garlic and similar soils—85 to 100 percent
Minor components:
Finch and similar soils—0 to 10 percent
Okeefe and similar soils—0 to 10 percent

Typical Profile

Garlic
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 9 inches; sand
Bhs—9 to 11 inches; sand
Bs—11 to 20 inches; sand

BC—20 to 29 inches; sand
C—29 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

21E—Garlic sand, 15 to 35 percent slopes

Setting

Landform: Pitted outwash plains, disintegration moraines

Map Unit Composition

Major components:
Garlic and similar soils—85 to 100 percent
Minor components:
Finch and similar soils—0 to 10 percent
Kinross and similar soils—0 to 10 percent

Typical Profile

Garlic
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 9 inches; sand
Bhs—9 to 11 inches; sand
Bs—11 to 20 inches; sand

BC—20 to 29 inches; sand
C—29 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 15 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

22E—Rousseau-Neconish-Deford complex, 0 to 25 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Rousseau and similar soils—30 to 50 percent
Neconish and similar soils—15 to 40 percent
Deford and similar soils—15 to 30 percent
Minor components:
Meehan and similar soils—5 to 15 percent

Typical Profile

Rousseau
Oi—0 to 1 inch; slightly decomposed plant material
E—1 to 4 inches; fine sand

Bs—4 to 20 inches; fine sand
BC—20 to 33 inches; fine sand
C1—33 to 66 inches; fine sand
C2—66 to 80 inches; sand

Neconish
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 8 inches; fine sand
Bs—8 to 21 inches; fine sand
BC—21 to 32 inches; fine sand
C—32 to 80 inches; fine sand

Deford
Oa—0 to 4 inches; muck
C—4 to 80 inches; fine sand

Soil Properties and Qualities

Rousseau
Parent material: Eolian deposits
Slope: 6 to 25 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Neconish
Parent material: Outwash, sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Deford
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 5.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Rousseau—erosion, sandy textures, seedling mortality, slope; Neconish—seedling mortality; Deford—seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Rousseau—cutbanks caving, slope; Neconish—cutbanks caving, seasonal wetness; Deford—cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Rousseau—slope, poor filtering capacity; Neconish—poor filtering capacity, seasonal wetness; Deford—poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: Rousseau—6e; Neconish—4s; Deford—5w
Michigan soil management group: Rousseau—5a; Neconish—5.3a; Deford—4c
Important farmland classification: Not prime farmland
Hydric soil status: Rousseau—not hydric; Neconish—not hydric; Deford—hydric
Habitat type: Rousseau—AQV; Neconish—AQV; Deford—FMC

24B—Rousseau fine sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains, lake plains

Map Unit Composition

Major components:
Rousseau and similar soils—100 percent

Typical Profile

Oi—0 to 1 inch; slightly decomposed plant material
E—1 to 4 inches; fine sand
Bs—4 to 20 inches; fine sand
BC—20 to 33 inches; fine sand
C1—33 to 66 inches; fine sand
C2—66 to 80 inches; sand

Soil Properties and Qualities

Parent material: Eolian sands over sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained

Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AQV

24D—Rousseau fine sand, 6 to 15 percent slopes

Setting

Landform: Dunes

Map Unit Composition

Major components:
Rousseau and similar soils—85 to 100 percent
Minor components:
Kinross and similar soils—0 to 10 percent
Wainola and similar soils—0 to 10 percent

Typical Profile

Rousseau
Oi—0 to 1 inch; slightly decomposed plant material
E—1 to 4 inches; fine sand
Bs—4 to 20 inches; fine sand
BC—20 to 33 inches; fine sand
C1—33 to 66 inches; fine sand
C2—66 to 80 inches; sand

Soil Properties and Qualities

Parent material: Eolian deposits
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 3.8 inches to a depth of 60 inches

Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AQV

24E—Rousseau fine sand, 15 to 35 percent slopes

Setting

Landform: Dunes

Map Unit Composition

Major components:
Rousseau and similar soils—85 to 100 percent
Minor components:
Neconish and similar soils—0 to 10 percent
Kinross and similar soils—0 to 10 percent
Wainola and similar soils—0 to 10 percent

Typical Profile

Rousseau
Oi—0 to 1 inch; slightly decomposed plant material
E—1 to 4 inches; fine sand
Bs—4 to 20 inches; fine sand
BC—20 to 33 inches; fine sand
C1—33 to 66 inches; fine sand
C2—66 to 80 inches; sand

Soil Properties and Qualities

Parent material: Eolian deposits
Slope: 15 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 3.8 inches to a depth of 60 inches

Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6e
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AQV

25B—Proper sand, 0 to 6 percent slopes

Setting

Landform: Lake plains, stream terraces, outwash plains

Map Unit Composition

Major components:
Proper and similar soils—80 to 95 percent
Minor components:
Rubicon and similar soils—5 to 15 percent
Finch and similar soils—0 to 10 percent

Typical Profile

Proper
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 11 inches; sand
Bs1—11 to 16 inches; sand
Bs2—16 to 21 inches; sand
BC—21 to 32 inches; sand
C—32 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained

Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a-h
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: PVC

26A—Spot-Finch complex, 0 to 3 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Spot and similar soils—40 to 60 percent
Finch and similar soils—30 to 50 percent
Minor components:
Dawson and similar soils—0 to 10 percent
Paquin and similar soils—0 to 10 percent

Typical Profile

Spot
Oi—0 to 2 inches; peat
E—2 to 8 inches; sand
Bhsm—8 to 10 inches; sand
Bs—10 to 18 inches; sand
C—18 to 80 inches; sand

Finch
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 11 inches; sand
Bsm—11 to 42 inches; sand
C—42 to 80 inches; fine sand

Soil Properties and Qualities

Spot
Parent material: Outwash
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: 8 to 12 inches to ortstein
Drainage class: Poorly drained
Available water capacity: About 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Finch
Parent material: Outwash
Slope: 0 to 3 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: 7 to 13 inches to ortstein
Drainage class: Somewhat poorly drained
Available water capacity: About 2.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: 0.5 to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Spot—seedling mortality, windthrow hazard, seasonal wetness, severe wetness; Finch—seedling mortality, windthrow hazard

Building site development
Major management concerns: Spot—cutbanks caving, ponding, severe wetness; Finch—cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Spot—poor filtering capacity, ponding, depth to ortstein, severe wetness; Finch—poor filtering capacity, depth to ortstein, severe wetness

Interpretive Groups

Land capability classification: Spot—5w; Finch—4w
Michigan soil management group: Spot—5c-h; Finch—5b-h
Important farmland classification: Not prime farmland
Hydric soil status: Spot—hydric; Finch—not hydric
Habitat type: Spot—TTS; Finch—TMC-V

27A—Hendrie-Annanias complex, 0 to 3 percent slopes

Setting

Landform: Lake plains

Map Unit Composition

Major components:
Hendrie and similar soils—45 to 55 percent
Annanias and similar soils—25 to 45 percent
Minor components:
Auger and similar soils—0 to 15 percent
Gogomain and similar soils—0 to 10 percent
Ingalls and similar soils—0 to 10 percent

Typical Profile

Hendrie
Oe—0 to 4 inches; mucky peat
Eg—4 to 7 inches; silt loam
Bw—7 to 16 inches; silt loam
C—16 to 80 inches; silt loam

Annanias
Oa—0 to 4 inches; highly decomposed plant material
E—4 to 7 inches; silt loam
Bhs—7 to 10 inches; silt loam
Bs—10 to 15 inches; silt loam
BC—15 to 26 inches; silt loam
C1—26 to 47 inches; stratified silt loam to very fine sandy loam
C2—47 to 80 inches; stratified silt loam to silt

Soil Properties and Qualities

Hendrie
Parent material: Glaciolacustrine deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 13.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: At the surface (March, April, May, October)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Annanias
Parent material: Glaciolacustrine deposits
Slope: 0 to 3 percent
Surface runoff class: Low
Potential for frost action: High
Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained
Available water capacity: About 9.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Hendrie—clayey textures, seedling mortality, windthrow hazard, severe wetness; Annanias—clayey textures, windthrow hazard

Building site development
Major management concerns: Hendrie—ponding, severe wetness; Annanias—seasonal wetness

Septic tank absorption fields
Major management concerns: Hendrie—restricted permeability, ponding, severe wetness; Annanias—severe wetness

Interpretive Groups

Land capability classification: Hendrie—5w; Annanias—3w
Michigan soil management group: Hendrie—2.5c; Annanias—3a-s
Important farmland classification: Not prime farmland
Hydric soil status: Hendrie—hydric; Annanias—not hydric
Habitat type: Hendrie—TTM; Annanias—TMC

30—Hendrie mucky peat

Setting

Landform: Lake plains

Map Unit Composition

Major components:
Hendrie and similar soils—80 to 100 percent
Minor components:
Annanias and similar soils—0 to 10 percent
Gogomain and similar soils—0 to 10 percent
Caffey and similar soils—0 to 10 percent
Tawas and similar soils—0 to 10 percent

Typical Profile

Hendrie
Oe—0 to 4 inches; mucky peat
Eg—4 to 7 inches; silt loam
Bw—7 to 16 inches; silt loam
C—16 to 80 inches; silt loam

Soil Properties and Qualities

Parent material: Glaciolacustrine deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible

Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 13.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: At the surface (March, April, May, October)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Clayey textures, seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Ponding, severe wetness

Septic tank absorption fields
Major management concerns: Restricted permeability, ponding, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: 2.5c
Important farmland classification: Not prime farmland
Hydric soil status: Hydric
Habitat type: TTM

33—Pits, sand and gravel

Map Unit Composition

Major components:
Pits, sand and gravel—100 percent

Use and Management

Dominant land use: Source of sand and gravel
- Onsite investigation is needed to determine the suitability for specific uses.

34B—Liminga fine sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains, ground moraines

Map Unit Composition

Major components:
Liminga and similar soils—85 to 100 percent
Minor components:
Alcona and similar soils—0 to 10 percent
Wainola and similar soils—0 to 10 percent

Typical Profile

Liminga
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 7 inches; fine sand
Bhs—7 to 9 inches; fine sand
Bs—9 to 22 inches; fine sand
BC—22 to 31 inches; fine sand
C—31 to 80 inches; fine sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD

34E—Liminga fine sand, 15 to 35 percent slopes

Setting

Landform: Dunes, ground moraines, outwash plains

Map Unit Composition

Major components:
Liminga and similar soils—90 to 100 percent
Minor components:
Alcona and similar soils—0 to 10 percent

Typical Profile

Liminga
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 7 inches; fine sand
Bhs—7 to 9 inches; fine sand
Bs—9 to 22 inches; fine sand
BC—22 to 31 inches; fine sand
C—31 to 80 inches; fine sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 15 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6e
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD

36—Carbondale, Lupton, and Tawas soils

Setting

Landform: Depressions on outwash plains

Map Unit Composition

Major components:
Carbondale and similar soils—0 to 100 percent
Lupton and similar soils—0 to 100 percent
Tawas and similar soils—0 to 100 percent

Minor components:
Deford and similar soils—0 to 10 percent
Paquin and similar soils—0 to 10 percent
Kalkaska and similar soils—0 to 5 percent

Typical Profile

Carbondale
Oa—0 to 38 inches; muck
Oe—38 to 80 inches; mucky peat

Lupton
Oi—0 to 4 inches; peat
Oa—4 to 80 inches; muck

Tawas
Oa—0 to 26 inches; muck
2C—26 to 80 inches; sand

Soil Properties and Qualities

Carbondale
Parent material: Herbaceous material
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 26.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, October, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, June, October, November)

Lupton
Parent material: Woody material
Slope: 0 to 1 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 24.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, October, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, June, October, November)

Tawas
Parent material: Woody material over drift
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 13.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, October, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, June, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, excess humus, low strength

Building site development
Major management concerns: Carbondale—ponding, severe wetness, low strength, subsidence; Lupton—ponding, severe wetness, low strength, subsidence; Tawas—cutbanks caving, ponding, severe wetness, low strength, subsidence

Septic tank absorption fields
Major management concerns: Carbondale and Lupton—ponding, low strength, subsidence, severe wetness; Tawas—poor filtering capacity, ponding, low strength, subsidence, severe wetness

Interpretive Groups

Land capability classification: Carbondale—6w; Lupton—6w; Tawas—6w
Michigan soil management group: Carbondale—Mc; Lupton—Mc; Tawas—M/4c
Important farmland classification: Not prime farmland
Hydric soil status: Carbondale—hydric; Lupton—hydric; Tawas—hydric
Habitat type: Carbondale—TTM/TTS; Lupton—TTM/TTS; Tawas—TTM

37—Dawson, Greenwood, and Loxley soils

Setting

Landform: Bogs

Map Unit Composition

Major components:
Dawson and similar soils—0 to 100 percent
Greenwood and similar soils—0 to 100 percent
Loxley and similar soils—0 to 100 percent

Minor components:
Spot and similar soils—0 to 10 percent
Finch and similar soils—0 to 10 percent
Paquin and similar soils—0 to 5 percent

Typical Profile

Dawson
Oi—0 to 10 inches; peat
Oa—10 to 38 inches; muck
C—38 to 80 inches; fine sand

Greenwood
Oe—0 to 65 inches; mucky peat
Oa—65 to 80 inches; muck

Loxley
Oi—0 to 8 inches; peat
Oa—8 to 80 inches; muck

Soil Properties and Qualities

Dawson
Parent material: Herbaceous material over sandy glaciofluvial deposits
Slope: 0 to 1 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 18.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: July, August, September
Deepest ponding: 0.5 foot (April, May)

Greenwood
Parent material: Herbaceous material
Slope: 0 to 1 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 29.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: July, August, September
Deepest ponding: 0.5 foot (April, May)

Loxley
Parent material: Herbaceous material
Slope: 0 to 1 percent
Surface runoff class: Negligible

Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 25.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: July, August, September
Deepest ponding: 0.5 foot (April, May, November)

Use and Management

Dominant land use: Wildlife habitat

Forestland
Major management concerns: Seedling mortality, windthrow hazard, excess humus, low strength

Building site development
Major management concerns: Dawson—cutbanks caving, ponding, severe wetness, low strength, subsidence; Greenwood and Loxley—ponding, severe wetness, low strength, subsidence

Septic tank absorption fields
Major management concerns: Dawson—poor filtering capacity, ponding, low strength, subsidence, severe wetness; Greenwood and Loxley—ponding, low strength, subsidence, severe wetness

Interpretive Groups

Land capability classification: Dawson—7w; Greenwood—7w; Loxley—7w
Michigan soil management group: Dawson—M/4c-a; Greenwood—Mc-a; Loxley—Mc-a
Important farmland classification: Not prime farmland
Hydric soil status: Dawson—hydric; Greenwood—hydric; Loxley—hydric
Habitat type: Dawson—PCS; Greenwood—PCS; Loxley—PCS

43—Ensley muck

Setting

Landform: Depressions and drainageways on ground moraines

Map Unit Composition

Major components:
Ensley and similar soils—85 to 95 percent
Minor components:
Deford and similar soils—5 to 10 percent
Cathro and similar soils—0 to 10 percent
Shoepac and similar soils—0 to 5 percent
Charlevoix and similar soils—0 to 5 percent

Typical Profile

Ensley
Oa—0 to 5 inches; muck
A—5 to 7 inches; mucky loam

Bw—7 to 19 inches; fine sandy loam
2C—19 to 80 inches; gravelly fine sandy loam

Soil Properties and Qualities

Parent material: Lodgment till
Slope: 0 to 2 percent
Surface runoff class: Very low
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 8.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Deepest ponding: 0.5 foot (March, April, May, June, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, seasonal wetness, severe wetness

Building site development
Major management concerns: Ponding, severe wetness

Septic tank absorption fields
Major management concerns: Ponding, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: 3c
Important farmland classification: Prime farmland where drained
Hydric soil status: Hydric
Habitat type: FI/TTM

56B—Shuberts-Wurtsmith-Meehan complex, 0 to 6 percent slopes

Setting

Landform: Beach ridges, swales

Map Unit Composition

Major components:
Shuberts and similar soils—25 to 45 percent
Wurtsmith and similar soils—20 to 30 percent
Meehan and similar soils—10 to 25 percent
Minor components:
Manistique and similar soils—5 to 15 percent

Deer Park and similar soils—0 to 15 percent
Tawas and similar soils—0 to 10 percent

Typical Profile

Shuberts
Oa—0 to 6 inches; muck
C—6 to 25 inches; fine sand
R—25 inches; bedrock

Wurtsmith
A—0 to 2 inches; sand
E—2 to 7 inches; sand
Bw—7 to 15 inches; sand
BC—15 to 26 inches; sand
C—26 to 80 inches; sand

Meehan
Oa—0 to 3 inches; highly decomposed plant material
E—3 to 7 inches; loamy sand
Bw—7 to 11 inches; sand
C1—11 to 23 inches; sand
C2—23 to 80 inches; sand

Soil Properties and Qualities

Shuberts
Parent material: Beach sand
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Poorly drained
Available water capacity: About 1.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Deepest ponding: 0.2 foot all year

Wurtsmith
Parent material: Sandy outwash, beach sand
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Meehan
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent

Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 3.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Building site development

Forestland
Major management concerns: Shuberts—seedling mortality, windthrow hazard, depth to bedrock, severe wetness; Wurtsmith—sandy textures, seedling mortality; Meehan—seedling mortality, windthrow hazard, seasonal wetness

Building site development
Major management concerns: Shuberts—cutbanks caving, ponding, severe wetness; Wurtsmith—cutbanks caving, seasonal wetness; Meehan—cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Shuberts—poor filtering capacity, ponding, depth to bedrock, severe wetness; Wurtsmith and Meehan—poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: Shuberts—5w; Wurtsmith—4s; Meehan—5s
Michigan soil management group: Shuberts—4/Rbc; Wurtsmith—5.7a; Meehan—5a
Important farmland classification: Not prime farmland
Hydric soil status: Shuberts—hydric; Wurtsmith—not hydric; Meehan—not hydric
Habitat type: Shuberts—none assigned; Wurtsmith—AQV; Meehan—TMC-V

61A—Ingalls-Caffey complex, 0 to 3 percent slopes

Setting

Landform: Lake plains

Map Unit Composition

Major components:
Ingalls and similar soils—35 to 55 percent
Caffey and similar soils—20 to 40 percent
Minor components:
Cublake and similar soils—5 to 20 percent
Neconish and similar soils—5 to 15 percent

Typical Profile

Ingalls
Oi—0 to 1 inch; slightly decomposed plant material
Oa—1 to 3 inches; highly decomposed plant material
E—3 to 10 inches; loamy sand

Bs1—10 to 17 inches; loamy sand
Bs2—17 to 23 inches; sand
BC—23 to 43 inches; loamy fine sand
2C—43 to 80 inches; stratified loamy fine sand to fine sandy loam to silt loam

Caffey
Oa—0 to 6 inches; muck
Bw—6 to 12 inches; sand
Cg—12 to 21 inches; sand
2C—21 to 35 inches; stratified very fine sandy loam to silt loam
2Cg—35 to 80 inches; very fine sandy loam

Soil Properties and Qualities

Ingalls
Parent material: Glaciofluvial deposits over glaciolacustrine deposits
Slope: 0 to 3 percent
Surface runoff class: Very low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 7.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Caffey
Parent material: Sandy glaciofluvial deposits over loamy glaciolacustrine deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 8.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: At the surface (March, April, May)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Ingalls—windthrow hazard, seasonal wetness; Caffey—seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Ingalls—cutbanks caving, seasonal wetness; Caffey—cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Ingalls—poor filtering capacity, restricted permeability, severe wetness; Caffey—ponding, severe wetness

Interpretive Groups

Land capability classification: Ingalls—3w; Caffey—5w
Michigan soil management group: Ingalls—4/2b; Caffey—4/2c
Important farmland classification: Not prime farmland
Hydric soil status: Ingalls—not hydric; Caffey—hydric
Habitat type: Ingalls—TMC-D; Caffey—TTM

62B—McMillan-Greylock fine sandy loams, 1 to 6 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
McMillan and similar soils—40 to 55 percent
Greylock and similar soils—20 to 45 percent
Minor components:
Graveraet and similar soils—0 to 15 percent
Noseum and similar soils—0 to 10 percent

Typical Profile

McMillan
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 6 inches; fine sandy loam
Bhs—6 to 9 inches; very fine sandy loam
Bs1—9 to 16 inches; very fine sandy loam
Bs2—16 to 22 inches; loamy fine sand
Bw—22 to 32 inches; sand
E and Bt—32 to 80 inches; stratified sand to loamy sand

Greylock
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 6 inches; fine sandy loam
E—6 to 7 inches; sandy loam
Bhs—7 to 9 inches; sandy loam
Bs—9 to 19 inches; sandy loam
E/B—19 to 26 inches; sandy loam
B/E—26 to 34 inches; sandy loam
C—34 to 80 inches; sandy loam

Soil Properties and Qualities

McMillan
Parent material: Sandy glaciofluvial deposits
Slope: 1 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate

Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Greylock
Parent material: Loamy till
Slope: 1 to 6 percent
Surface runoff class: High
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 7.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Cropland, pasture, building site development

Cropland
Major management concerns: McMillan—water erosion, soil blowing, droughtiness, nutrient loss; Greylock—water erosion, soil blowing

Pasture
Major management concerns: McMillan—water erosion, droughtiness; Greylock—water erosion

Forestland
Major management concerns: None

Building site development
Major management concerns: McMillan—cutbanks caving; Greylock—none

Septic tank absorption fields
Major management concerns: McMillan—poor filtering capacity; Greylock—none

Interpretive Groups

Land capability classification: McMillan—3s; Greylock—2e
Michigan soil management group: McMillan—4a; Greylock—3a
Important farmland classification: Prime farmland
Hydric soil status: McMillan—not hydric; Greylock—not hydric
Habitat type: McMillan—AVO/ATD; Greylock—AVO

62D—McMillan-Greylock fine sandy loams, 6 to 15 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
McMillan and similar soils—30 to 60 percent
Greylock and similar soils—20 to 45 percent

Minor components:

Menominee, sandy substratum, and similar soils—5 to 15 percent
Kalkaska and similar soils—2 to 15 percent

Typical Profile

McMillan

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 6 inches; fine sandy loam
Bhs—6 to 9 inches; very fine sandy loam
Bs1—9 to 16 inches; very fine sandy loam
Bs2—16 to 22 inches; loamy fine sand
Bw—22 to 32 inches; sand
E and Bt—32 to 80 inches; stratified sand to loamy sand

Greylock

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 6 inches; fine sandy loam
E—6 to 7 inches; sandy loam
Bhs—7 to 9 inches; sandy loam
Bs—9 to 19 inches; sandy loam
E/B—19 to 26 inches; sandy loam
B/E—26 to 34 inches; sandy loam
C—34 to 80 inches; sandy loam

Soil Properties and Qualities

McMillan

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Greylock

Parent material: Loamy till
Slope: 6 to 15 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 7.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: None

Building site development
Major management concerns: McMillan—cutbanks caving, slope; Greylock—slope

Septic tank absorption fields
Major management concerns: McMillan—slope, poor filtering capacity; Greylock—slope

Interpretive Groups

Land capability classification: McMillan—4e; Greylock—4e
Michigan soil management group: McMillan—4a; Greylock—3a
Important farmland classification: Not prime farmland
Hydric soil status: McMillan—not hydric; Greylock—not hydric
Habitat type: McMillan—ATD; Greylock—AVO

62E—Greylock-McMillan fine sandy loams, 15 to 35 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Greylock and similar soils—30 to 70 percent
McMillan and similar soils—25 to 45 percent
Minor components:
Kalkaska and similar soils—0 to 10 percent
Menominee, sandy substratum, and similar soils—0 to 10 percent

Typical Profile

Greylock
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 6 inches; fine sandy loam
E—6 to 7 inches; sandy loam
Bhs—7 to 9 inches; sandy loam
Bs—9 to 19 inches; sandy loam
E/B—19 to 26 inches; sandy loam
B/E—26 to 34 inches; sandy loam
C—34 to 80 inches; sandy loam

McMillan
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 6 inches; fine sandy loam
Bhs—6 to 9 inches; very fine sandy loam
Bs1—9 to 16 inches; very fine sandy loam
Bs2—16 to 22 inches; loamy fine sand

Bw—22 to 32 inches; sand
E and Bt—32 to 80 inches; stratified sand to loamy sand

Soil Properties and Qualities

Greylock
Parent material: Loamy till
Slope: 15 to 35 percent
Surface runoff class: High
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 7.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

McMillan
Parent material: Sandy glaciofluvial deposits
Slope: 15 to 35 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Greylock—erosion, slope; McMillan—erosion, sandy textures, slope

Building site development
Major management concerns: Greylock—slope; McMillan—cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Greylock—slope; McMillan—slope, poor filtering capacity

Interpretive Groups

Land capability classification: Greylock—7e; McMillan—6e
Michigan soil management group: Greylock—3a; McMillan—4a
Important farmland classification: Not prime farmland
Hydric soil status: Greylock—not hydric; McMillan—not hydric
Habitat type: Greylock—AVO; McMillan—ATD

63—Deford muck

Setting

Landform: Depressions on lake plains and outwash plains

Map Unit Composition

Major components:
Deford and similar soils—85 to 100 percent
Minor components:
Au Gres and similar soils—0 to 10 percent
Croswell and similar soils—0 to 10 percent

Typical Profile

Deford
Oa—0 to 4 inches; muck
C—4 to 80 inches; fine sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 5.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.5 foot (March, April, May, October, November)

Use and Management

Dominant land use: Wildlife habitat

Forestland
Major management concerns: Seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: 4c
Important farmland classification: Not prime farmland
Hydric soil status: Hydric
Habitat type: FMC/TMC

65—Ausable, Deford, and Tawas mucks, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Major components:
Ausable, frequently flooded, and similar soils—0 to 100 percent
Deford, frequently flooded, and similar soils—0 to 100 percent
Tawas, frequently flooded, and similar soils—0 to 100 percent
Minor components:
Seney, frequently flooded, and similar soils—5 to 12 percent

Typical Profile

Ausable
Oa—0 to 9 inches; muck
Cg—9 to 35 inches; stratified sand
O´a—35 to 45 inches; stratified, highly decomposed plant material to sand
C—45 to 80 inches; sand

Deford
Oa—0 to 4 inches; muck
C—4 to 80 inches; fine sand

Tawas
Oa—0 to 26 inches; muck
2C—26 to 80 inches; sand

Soil Properties and Qualities

Ausable
Parent material: Sandy alluvium
Slope: 0 to 1 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 10.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Frequency of flooding: Frequent (April, May, October, November)
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Ponding: None

Deford
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 5.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid

Frequency of flooding: Frequent (April, May, October, November)
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Ponding: None

Tawas
Parent material: Woody material over drift
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 13.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Frequency of flooding: Frequent (April, May, October, November)
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Ponding: None

Use and Management

Dominant land use: Wildlife habitat

Forestland
Major management concerns: Ausable—seedling mortality, windthrow hazard, seasonal wetness, severe wetness, flooding; Deford—windthrow hazard, seasonal wetness, severe wetness, flooding; Tawas—windthrow hazard, excess humus, low strength, flooding

Building site development
Major management concerns: Ausable and Deford—cutbanks caving, flooding, severe wetness; Tawas—cutbanks caving, ponding, flooding, severe wetness, low strength, subsidence

Septic tank absorption fields
Major management concerns: Ausable and Deford—poor filtering capacity, flooding; Tawas—poor filtering capacity, flooding, low strength, subsidence

Interpretive Groups

Land capability classification: Ausable—7w; Deford—7w; Tawas—6w
Michigan soil management group: Ausable—L-4c; Deford—L-4c; Tawas—M/4c
Important farmland classification: Not prime farmland
Hydric soil status: Ausable—hydric; Deford—hydric; Tawas—hydric
Habitat type: Ausable—FMC; Deford—FMC; Tawas—TTM

66—Markey mucky peat

Setting

Landform: Depressions on lake plains and outwash plains

Map Unit Composition

Major components:
Markey and similar soils—85 to 100 percent

Minor components:
Kinross and similar soils—0 to 15 percent

Typical Profile

Markey
Oe—0 to 3 inches; mucky peat
Oa—3 to 20 inches; muck
Cg—20 to 80 inches; sand

Soil Properties and Qualities

Parent material: Herbaceous material over sandy glaciofluvial deposits
Slope: 0 to 1 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 10.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, October, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, June, October, November)

Use and Management

Dominant land use: Habitat for wetland wildlife

Forestland
Major management concerns: Seedling mortality, windthrow hazard, excess humus, low strength

Building site development
Major management concerns: Cutbanks caving, ponding, severe wetness, low strength, subsidence

Septic tank absorption fields
Major management concerns: Poor filtering capacity, ponding, low strength, subsidence, severe wetness

Interpretive Groups

Land capability classification: 6w
Michigan soil management group: M/4c
Important farmland classification: Not prime farmland
Hydric soil status: Hydric
Habitat type: None assigned

67B—Pelkie, occasionally flooded-Deford, frequently flooded, complex, 0 to 4 percent slopes

Setting

Landform: Flood plains

Map Unit Composition

Major components:
Pelkie, occasionally flooded, and similar soils—40 to 65 percent
Deford, frequently flooded, and similar soils—20 to 40 percent
Minor components:
Tawas, frequently flooded, and similar soils—0 to 15 percent
Seney, occasionally flooded, and similar soils—0 to 10 percent
Rousseau and similar soils—0 to 10 percent
Water—0 to 10 percent

Typical Profile

Pelkie
A—0 to 4 inches; loamy fine sand
C1—4 to 38 inches; loamy fine sand
C2—38 to 80 inches; sand

Deford
Oa—0 to 4 inches; muck
C—4 to 80 inches; fine sand

Soil Properties and Qualities

Pelkie
Parent material: Sandy alluvium
Slope: 0 to 4 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Frequency of flooding: Occasional (March, April, May)
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Deford
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 5.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Frequency of flooding: Frequent (April, May, October, November)
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Wildlife habitat

Forestland
Major management concerns: Pelkie—seedling mortality, flooding; Deford—seedling mortality, windthrow hazard, severe wetness, flooding

Building site development
Major management concerns: Pelkie—cutbanks caving, flooding, seasonal wetness; Deford—cutbanks caving, flooding, severe wetness

Septic tank absorption fields
Major management concerns: Pelkie—poor filtering capacity, flooding, seasonal wetness; Deford—poor filtering capacity, flooding

Interpretive Groups

Land capability classification: Pelkie—4s; Deford—7w
Michigan soil management group: Pelkie—L-4a; Deford—L-4c
Important farmland classification: Not prime farmland
Hydric soil status: Pelkie—not hydric; Deford—hydric
Habitat type: Pelkie—ATD; Deford—FMC

68F—Deer Park sand, 25 to 60 percent slopes

Setting

Landform: Dunes

Map Unit Composition

Major components:
Deer Park and similar soils—90 to 100 percent
Minor components:
Kinross and similar soils—0 to 10 percent

Typical Profile

Deer Park
Oa—0 to 2 inches; highly decomposed plant material
A—2 to 3 inches; sand
E—3 to 10 inches; sand
Bs—10 to 21 inches; sand
C—21 to 80 inches; sand

Soil Properties and Qualities

Parent material: Eolian deposits
Slope: 25 to 60 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: PVC/QAE

69—Ruse mucky loam, rocky

Setting

Landform: Depressions on ground moraines

Map Unit Composition

Major components:
Ruse and similar soils—75 to 90 percent
Minor components:
Rock outcrop—10 to 25 percent

Typical Profile

Ruse
A—0 to 7 inches; mucky loam
Bg—7 to 11 inches; sandy loam
Bw—11 to 15 inches; sandy loam
2R—15 inches; bedrock

Soil Properties and Qualities

Parent material: Loamy till
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: 4 to 20 inches to lithic bedrock
Drainage class: Poorly drained
Available water capacity: About 2.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.5 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, depth to bedrock, severe wetness

Building site development
Major management concerns: Ponding, severe wetness

Septic tank absorption fields
Major management concerns: Ponding, depth to bedrock, severe wetness

Interpretive Groups

Land capability classification: 7w
Michigan soil management group: Rbc
Important farmland classification: Not prime farmland
Hydric soil status: Hydric
Habitat type: TTM

70F—Deer Park-Deford-Tawas complex, 0 to 60 percent slopes

Setting

Landform: Beach ridges, dunes

Map Unit Composition

Major components:
Deer Park and similar soils—50 to 70 percent
Deford and similar soils—10 to 30 percent
Tawas and similar soils—5 to 20 percent
Minor components:
Wurtsmith and similar soils—0 to 10 percent

Typical Profile

Deer Park
Oa—0 to 2 inches; highly decomposed plant material
A—2 to 3 inches; sand
E—3 to 10 inches; sand
Bs—10 to 21 inches; sand
C—21 to 80 inches; sand

Deford
Oa—0 to 4 inches; muck
C—4 to 80 inches; fine sand

Tawas
Oa—0 to 26 inches; muck
2C—26 to 80 inches; sand

Soil Properties and Qualities

Deer Park
Parent material: Eolian deposits
Slope: 15 to 60 percent
Surface runoff class: Low

Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Deford
Parent material: Beach sand
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 5.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Deepest ponding: 0.2 foot all year

Tawas
Parent material: Woody material over drift
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 13.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, October, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, June, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Deer Park—severe erosion, sandy textures, seedling mortality, slope; Deford—seedling mortality, windthrow hazard, seasonal wetness, severe wetness; Tawas—seedling mortality, windthrow hazard, excess humus, low strength

Building site development
Major management concerns: Deer Park—cutbanks caving, slope; Deford—cutbanks caving, ponding, severe wetness; Tawas—cutbanks caving, ponding, severe wetness, low strength, subsidence

Septic tank absorption fields
Major management concerns: Deer Park—slope, poor filtering capacity; Deford—poor filtering capacity, ponding, severe wetness; Tawas—poor filtering capacity, ponding, low strength, subsidence, severe wetness

Interpretive Groups

Land capability classification: Deer Park—7s; Deford—5w; Tawas—6w
Michigan soil management group: Deer Park—5.3a; Deford—5c; Tawas—M/4c
Important farmland classification: Not prime farmland
Hydric soil status: Deer Park—not hydric; Deford—hydric; Tawas—hydric
Habitat type: Deer Park—PVC/QAE; Deford—FMC; Tawas—TTM

72—Spot peat

Setting

Landform: Depressions on outwash plains

Map Unit Composition

Major components:
Spot and similar soils—80 to 100 percent
Minor components:
Finch and similar soils—0 to 15 percent
Dawson and similar soils—0 to 10 percent

Typical Profile

Spot
Oi—0 to 2 inches; peat
E—2 to 8 inches; sand
Bhsm—8 to 10 inches; sand
Bs—10 to 18 inches; sand
C—18 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: 8 to 12 inches to ortstein
Drainage class: Poorly drained
Available water capacity: About 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, ponding, depth to ortstein, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: 5c-h
Important farmland classification: Not prime farmland
Hydric soil status: Hydric
Habitat type: TTS

73B—Graveraet-Gulliver complex, 1 to 6 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Graveraet and similar soils—35 to 55 percent
Gulliver and similar soils—25 to 40 percent
Minor components:
Cookson and similar soils—5 to 15 percent
Greylock and similar soils—0 to 10 percent
Noseum and similar soils—0 to 10 percent
Charlevoix and similar soils—0 to 10 percent

Typical Profile

Graveraet
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 7 inches; fine sandy loam
Bhs—7 to 10 inches; fine sandy loam
Bs—10 to 17 inches; fine sandy loam
E/Bx—17 to 33 inches; loamy sand, loam
B/E—33 to 48 inches; sandy clay loam, loamy sand
Bt—48 to 68 inches; sandy clay loam
C—68 to 80 inches; sandy loam

Gulliver
A—0 to 4 inches; silt loam
E—4 to 9 inches; silt loam
Bhs—9 to 12 inches; silt
2Bs—12 to 19 inches; sandy loam
2E/B—19 to 24 inches; sandy loam
2Bt—24 to 30 inches; sandy loam
2C—30 to 58 inches; gravelly fine sandy loam
3R—58 inches; bedrock

Soil Properties and Qualities

Graveraet
Parent material: Till
Slope: 1 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: 14 to 24 inches to a fragipan
Drainage class: Moderately well drained
Available water capacity: About 6.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Very slow
Flooding: None
Depth to seasonal high water table: 1 to 2 feet (April)
Ponding: None

Gulliver
Parent material: Loamy glaciolacustrine deposits over till
Slope: 1 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Moderately well drained
Available water capacity: About 9.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 1.5 to 4.8 feet (April)
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Pasture, building site development

Pasture
Major management concerns: Graveraet—water erosion; Gulliver—soil compaction, water erosion

Forestland
Major management concerns: Graveraet—soil rutting, windthrow hazard, seasonal wetness; Gulliver—clayey textures, soil rutting

Building site development
Major management concerns: Graveraet—cutbanks caving, seasonal wetness; Gulliver—depth to bedrock, seasonal wetness

Septic tank absorption fields
Major management concerns: Graveraet—restricted permeability, depth to a fragipan, severe wetness; Gulliver—depth to bedrock, severe wetness

Interpretive Groups

Land capability classification: Graveraet—2e; Gulliver—3e
Michigan soil management group: Graveraet—3a-f; Gulliver—3a
Important farmland classification: Farmland of local importance
Hydric soil status: Graveraet—not hydric; Gulliver—not hydric
Habitat type: Graveraet—AVO; Gulliver—AVO

76A—Shuberts-Manistique complex, 0 to 3 percent slopes

Setting

Landform: Beach ridges, swales

Map Unit Composition

Major components:
Shuberts and similar soils—40 to 65 percent
Manistique and similar soils—25 to 55 percent
Minor components:
Chippeny and similar soils—0 to 10 percent

Typical Profile

Shuberts
Oa—0 to 6 inches; muck
C—6 to 25 inches; fine sand
R—25 inches; bedrock

Manistique
A—0 to 2 inches; fine sand
E—2 to 12 inches; fine sand
Bw—12 to 24 inches; fine sand
C—24 to 28 inches; fine sand
2R—28 inches; bedrock

Soil Properties and Qualities

Shuberts
Parent material: Beach sand
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Poorly drained
Available water capacity: About 1.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Deepest ponding: 0.2 foot all year

Manistique
Parent material: Beach sand
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Available water capacity: About 2.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 0.5 to 2.3 feet (May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Shuberts—seedling mortality, windthrow hazard, depth to bedrock, severe wetness; Manistique—seedling mortality, windthrow hazard, depth to bedrock, seasonal wetness

Building site development
Major management concerns: Shuberts—cutbanks caving, ponding, severe wetness; Manistique—cutbanks caving, depth to bedrock, seasonal wetness

Septic tank absorption fields
Major management concerns: Shuberts—poor filtering capacity, ponding, depth to bedrock, severe wetness; Manistique—poor filtering capacity, depth to bedrock, severe wetness

Interpretive Groups

Land capability classification: Shuberts—5w; Manistique—3w
Michigan soil management group: Shuberts—4/Rbc; Manistique—4/Rbc
Important farmland classification: Not prime farmland
Hydric soil status: Shuberts—hydric; Manistique—not hydric
Habitat type: None assigned

78B—Heinz sandy loam, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Heinz and similar soils—100 percent

Typical Profile

Oa—0 to 1 inch; highly decomposed plant material
A—1 to 5 inches; sandy loam
E—5 to 6 inches; sandy loam
Bhs—6 to 8 inches; sandy loam
Bs—8 to 25 inches; sand
2C—25 to 80 inches; very gravelly sand

Soil Properties and Qualities

Parent material: Gravelly outwash
Slope: 0 to 6 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 3/5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

80F—Deer Park-Dawson-Wainola complex, 0 to 60 percent slopes

Setting

Landform: Beach ridges, dunes

Map Unit Composition

Major components:
Deer Park and similar soils—35 to 60 percent
Dawson and similar soils—10 to 30 percent
Wainola and similar soils—10 to 20 percent
Minor components:
Wurtsmith and similar soils—5 to 15 percent
Kinross and similar soils—0 to 10 percent

Typical Profile

Deer Park
Oa—0 to 2 inches; highly decomposed plant material
A—2 to 3 inches; sand
E—3 to 10 inches; sand
Bs—10 to 21 inches; sand
C—21 to 80 inches; sand

Dawson
Oi—0 to 10 inches; peat
Oa—10 to 38 inches; muck
C—38 to 80 inches; fine sand

Wainola
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 12 inches; fine sand
Bs1—12 to 18 inches; fine sand
Bs2—18 to 27 inches; fine sand
BC—27 to 41 inches; fine sand
C—41 to 80 inches; very fine sand

Soil Properties and Qualities

Deer Park
Parent material: Eolian deposits
Slope: 15 to 60 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Dawson
Parent material: Herbaceous material over sandy glaciofluvial deposits
Slope: 0 to 1 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 18.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: July, August, September
Deepest ponding: 0.5 foot (April, May)

Wainola
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Deer Park—severe erosion, sandy textures, seedling mortality, slope; Dawson—seedling mortality, windthrow hazard, excess humus, low strength; Wainola—seedling mortality, windthrow hazard, seasonal wetness

Building site development
Major management concerns: Deer Park—cutbanks caving, slope; Dawson—cutbanks caving, ponding, severe wetness, low strength, subsidence; Wainola—cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Deer Park—slope, poor filtering capacity; Dawson—poor filtering capacity, ponding, low strength, subsidence, severe wetness; Wainola—poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: Deer Park—7s; Dawson—7w; Wainola—4w
Michigan soil management group: Deer Park—5.3a; Dawson—M/4c-a; Wainola—5b
Important farmland classification: Not prime farmland
Hydric soil status: Deer Park—not hydric; Dawson—hydric; Wainola—not hydric
Habitat type: Deer Park—AQV; Dawson—PCS; Wainola—TMC

84—Dawson-Kinross complex

Setting

Landform: Depressions on outwash plains

Map Unit Composition

Major components:
Dawson and similar soils—45 to 70 percent
Kinross and similar soils—25 to 40 percent
Minor components:
Wainola and similar soils—0 to 10 percent

Typical Profile

Dawson
Oi—0 to 10 inches; peat
Oa—10 to 38 inches; muck
C—38 to 80 inches; fine sand

Kinross
Oa—0 to 3 inches; muck
Eg—3 to 14 inches; sand
Bhs—14 to 22 inches; sand
Bs—22 to 35 inches; sand
C—35 to 80 inches; sand

Soil Properties and Qualities

Dawson
Parent material: Herbaceous material over sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 18.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: July, August, September
Deepest ponding: 0.5 foot (April, May)

Kinross
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Dawson—seedling mortality, windthrow hazard, excess humus, low strength; Kinross—seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Dawson—cutbanks caving, ponding, severe wetness, low strength, subsidence; Kinross—cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Dawson—poor filtering capacity, ponding, low strength, subsidence, severe wetness; Kinross—poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: Dawson—7w; Kinross—6w
Michigan soil management group: Dawson—M/4c-a; Kinross—5c-a
Important farmland classification: Not prime farmland
Hydric soil status: Dawson—hydric; Kinross—hydric
Habitat type: Dawson—PCS; Kinross—TTS

86B—Wurtsmith-Tawas-Deford complex, 0 to 6 percent slopes

Setting

Landform: Beach ridges, outwash plains

Map Unit Composition

Major components:
Wurtsmith and similar soils—40 to 60 percent

Tawas and similar soils—10 to 45 percent
Deford and similar soils—5 to 30 percent
Minor components:
Au Gres and similar soils—0 to 15 percent

Typical Profile

Wurtsmith
A—0 to 2 inches; sand
E—2 to 7 inches; sand
Bw—7 to 15 inches; sand
BC—15 to 26 inches; sand
C—26 to 80 inches; sand

Tawas
Oa—0 to 26 inches; muck
2C—26 to 80 inches; sand

Deford
Oa—0 to 4 inches; muck
C—4 to 80 inches; fine sand

Soil Properties and Qualities

Wurtsmith
Parent material: Sandy outwash, beach sand
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Tawas
Parent material: Woody material over drift
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 13.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, October, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, June, October, November)

Deford
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent

Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 5.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.5 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland
Other uses: Wildlife habitat

Forestland
Major management concerns: Wurtsmith—sandy textures, seedling mortality; Tawas—seedling mortality, windthrow hazard, excess humus, low strength; Deford—seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Wurtsmith—cutbanks caving, seasonal wetness; Tawas—cutbanks caving, ponding, severe wetness, low strength, subsidence; Deford—cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Wurtsmith—poor filtering capacity, seasonal wetness; Tawas—poor filtering capacity, ponding, low strength, subsidence, severe wetness; Deford—poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: Wurtsmith—4s; Tawas—6w; Deford—5w
Michigan soil management group: Wurtsmith—5.7a; Tawas—M/4c; Deford—4c
Important farmland classification: Not prime farmland
Hydric soil status: Wurtsmith—not hydric; Tawas—hydric; Deford—hydric
Habitat type: Wurtsmith—AQV; Tawas—TTM; Deford—FMC

87B—Longrie-Amadon silt loams, 0 to 6 percent slopes, rocky

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Longrie and similar soils—40 to 75 percent
Amadon and similar soils—15 to 45 percent
Minor components:
Furlong and similar soils—0 to 10 percent
Trenary and similar soils—0 to 10 percent
Rock outcrop—0 to 5 percent

Typical Profile

Longrie
Oe—0 to 1 inch; moderately decomposed plant material
Oa—1 to 2 inches; highly decomposed plant material
E—2 to 6 inches; silt loam
Bhs—6 to 8 inches; silt loam
Bs—8 to 23 inches; silt loam
C—23 to 36 inches; sandy loam
2R—36 inches; bedrock

Amadon
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 8 inches; silt loam
Bhs—8 to 10 inches; silt loam
Bs—10 to 15 inches; silt loam
2R—15 inches; bedrock

Soil Properties and Qualities

Longrie
Parent material: Loamy glaciolacustrine deposits over loamy till
Slope: 0 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Available water capacity: About 6.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Amadon
Parent material: Till
Slope: 0 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Available water capacity: About 2.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Pasture, building site development

Pasture
Major management concerns: Longrie—water erosion; Amadon—water erosion, droughtiness

Forestland
Major management concerns: Longrie—soil rutting, depth to bedrock; Amadon—soil rutting, windthrow hazard, depth to bedrock

Building site development
Major management concerns: Depth to bedrock

Septic tank absorption fields
Major management concerns: Depth to bedrock

Interpretive Groups

Land capability classification: Longrie—2e; Amadon—3s
Michigan soil management group: Longrie—3/Ra; Amadon—Ra
Important farmland classification: Not prime farmland
Hydric soil status: Longrie—not hydric; Amadon—not hydric
Habitat type: Longrie—AVO; Amadon—ATD

87D—Amadon-Longrie silt loams, 6 to 15 percent slopes, rocky

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Amadon and similar soils—30 to 60 percent
Longrie and similar soils—30 to 60 percent
Minor components:
Battydoe and similar soils—0 to 10 percent
Rock outcrop—1 to 10 percent

Typical Profile

Amadon
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 8 inches; silt loam
Bhs—8 to 10 inches; silt loam
Bs—10 to 15 inches; silt loam
2R—15 inches; bedrock

Longrie
Oe—0 to 1 inch; moderately decomposed plant material
Oa—1 to 2 inches; highly decomposed plant material
E—2 to 6 inches; silt loam
Bhs—6 to 8 inches; silt loam
Bs—8 to 23 inches; silt loam
C—23 to 36 inches; sandy loam
2R—36 inches; bedrock

Soil Properties and Qualities

Amadon
Parent material: Till
Slope: 6 to 15 percent
Surface runoff class: Medium
Potential for frost action: Moderate

Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Available water capacity: About 2.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Longrie
Parent material: Till
Slope: 6 to 15 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Available water capacity: About 6.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Amadon—erosion, soil rutting, windthrow hazard, depth to bedrock; Longrie—soil rutting, depth to bedrock

Building site development
Major management concerns: Depth to bedrock, slope

Septic tank absorption fields
Major management concerns: Slope, depth to bedrock

Interpretive Groups

Land capability classification: Amadon—4e; Longrie—4e
Michigan soil management group: Amadon—Ra; Longrie—3/Ra
Important farmland classification: Not prime farmland
Hydric soil status: Amadon—not hydric; Longrie—not hydric
Habitat type: Amadon—ATD; Longrie—AVO

87E—Amadon-Longrie-Rock outcrop complex, 15 to 35 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Amadon and similar soils—50 to 75 percent
Longrie and similar soils—10 to 30 percent
Rock outcrop—10 to 20 percent

Typical Profile

Amadon
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 8 inches; silt loam
Bhs—8 to 10 inches; silt loam
Bs—10 to 15 inches; silt loam
2R—15 inches; bedrock

Longrie
Oe—0 to 1 inch; moderately decomposed plant material
Oa—1 to 2 inches; highly decomposed plant material
E—2 to 6 inches; silt loam
Bhs—6 to 8 inches; silt loam
Bs—8 to 23 inches; silt loam
C—23 to 36 inches; sandy loam
2R—36 inches; bedrock

Soil Properties and Qualities

Amadon
Parent material: Till
Slope: 15 to 35 percent
Surface runoff class: High
Potential for frost action: Moderate
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Available water capacity: About 2.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Longrie
Parent material: Till
Slope: 15 to 35 percent
Surface runoff class: High
Potential for frost action: Moderate
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Available water capacity: About 6.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Amadon—severe erosion, soil rutting, windthrow hazard, slope, rock outcrop; Longrie—erosion, soil rutting, slope, rock outcrop

Building site development
Major management concerns: Depth to bedrock, slope

Septic tank absorption fields
Major management concerns: Amadon—slope, restricted permeability, depth to bedrock; Longrie—slope, depth to bedrock

Interpretive Groups

Land capability classification: Amadon—7e; Longrie—7e
Michigan soil management group: Amadon—Ra; Longrie—3/Ra
Important farmland classification: Not prime farmland
Hydric soil status: Amadon—not hydric; Longrie—not hydric
Habitat type: Amadon—ATD; Longrie—AVO

88B—Cookson-Amadon silt loams, 1 to 6 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Cookson and similar soils—45 to 60 percent
Amadon and similar soils—30 to 50 percent

Typical Profile

Cookson
Oi—0 to 3 inches; slightly decomposed plant material
E—3 to 7 inches; silt loam
Bhs—7 to 11 inches; silt loam
Bs—11 to 16 inches; sandy loam
2E/B—16 to 21 inches; fine sandy loam
2Bt—21 to 31 inches; sandy clay loam
2C—31 to 36 inches; fine sandy loam
3R—36 inches; bedrock

Amadon
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 8 inches; silt loam
Bhs—8 to 10 inches; silt loam
Bs—10 to 15 inches; silt loam
2R—15 inches; bedrock

Soil Properties and Qualities

Cookson
Parent material: Loamy glaciofluvial deposits over loamy till
Slope: 1 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Available water capacity: About 5.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Amadon
Parent material: Till
Slope: 1 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Available water capacity: About 2.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Pasture

Pasture
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Cookson—soil rutting, depth to bedrock; Amadon—soil rutting, windthrow hazard, depth to bedrock

Building site development
Major management concerns: Depth to bedrock

Septic tank absorption fields
Major management concerns: Depth to bedrock

Interpretive Groups

Land capability classification: Cookson—2e; Amadon—3s
Michigan soil management group: Cookson—3/Ra; Amadon—Ra
Important farmland classification: Farmland of local importance
Hydric soil status: Cookson—not hydric; Amadon—not hydric
Habitat type: Cookson—AVO; Amadon—AVO

89B—Cookson-Trenary silt loams, 1 to 6 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Cookson and similar soils—50 to 75 percent
Trenary and similar soils—20 to 40 percent
Minor components:
Amadon and similar soils—0 to 10 percent

Typical Profile

Cookson
Oi—0 to 3 inches; slightly decomposed plant material
E—3 to 7 inches; silt loam
Bhs—7 to 11 inches; silt loam

Bs—11 to 16 inches; sandy loam
2E/B—16 to 21 inches; fine sandy loam
2Bt—21 to 31 inches; sandy clay loam
2C—31 to 36 inches; fine sandy loam
3R—36 inches; bedrock

Trenary
A—0 to 2 inches; silt loam
E—2 to 6 inches; silt loam
Bhs—6 to 12 inches; silt loam
Bs—12 to 17 inches; silt loam
E´—17 to 26 inches; sandy loam
Bt—26 to 37 inches; sandy clay loam
C—37 to 80 inches; sandy loam

Soil Properties and Qualities

Cookson
Parent material: Loamy glaciofluvial deposits over loamy till
Slope: 1 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Available water capacity: About 5.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Trenary
Parent material: Till
Slope: 1 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 8.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Cropland, pasture, building site development

Cropland
Major management concerns: Cookson—water erosion, droughtiness; Trenary—water erosion, soil compaction

Pasture
Major management concerns: Cookson—water erosion, droughtiness; Trenary—soil compaction, water erosion

Forestland
Major management concerns: Cookson—soil rutting, depth to bedrock; Trenary—none

Building site development
Major management concerns: Cookson—depth to bedrock; Trenary—none

Septic tank absorption fields
Major management concerns: Cookson—depth to bedrock; Trenary—none

Interpretive Groups

Land capability classification: Cookson—2e; Trenary—2e
Michigan soil management group: Cookson—3/Ra; Trenary—3a
Important farmland classification: Prime farmland
Hydric soil status: Cookson—not hydric; Trenary—not hydric
Habitat type: Cookson—AVO; Trenary—AOC

90—Chippeny muck

Setting

Landform: Glacial drainage channels, depressions on ground moraines, benches

Map Unit Composition

Major components:
Chippeny and similar soils—100 percent

Typical Profile

Oa—0 to 20 inches; muck
2Cg—20 to 28 inches; silty clay loam
3R—28 inches; bedrock

Soil Properties and Qualities

Parent material: Woody organic material
Slope: 0 to 1 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: 16 to 51 inches to lithic bedrock
Drainage class: Very poorly drained
Available water capacity: About 9.6 inches to a depth of 60 inches
Shrink-swell potential: High
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, depth to bedrock, excess humus, low strength

Building site development
Major management concerns: Ponding, severe wetness, low strength

Septic tank absorption fields
Major management concerns: Restricted permeability, ponding, low strength, depth to bedrock, severe wetness

Interpretive Groups

Land capability classification: 6w
Michigan soil management group: M/Rc
Important farmland classification: Not prime farmland
Hydric soil status: Hydric
Habitat type: TTM

91—Cathro and Lupton soils

Setting

Landform: Depressions on ground moraines

Map Unit Composition

Major components:
Cathro and similar soils—0 to 100 percent
Lupton and similar soils—0 to 100 percent
Minor components:
Nahma and similar soils—0 to 15 percent

Typical Profile

Cathro
Oa—0 to 34 inches; muck
2C—34 to 80 inches; gravelly fine sandy loam

Lupton
Oi—0 to 4 inches; peat
Oa—4 to 80 inches; muck

Soil Properties and Qualities

Cathro
Parent material: Woody material over loamy till
Slope: 0 to 1 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 16.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, October, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, June, October, November)

Lupton
Parent material: Woody material
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 24.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, October, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, June, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, excess humus, low strength

Building site development
Major management concerns: Cathro—ponding, severe wetness, low strength; Lupton—ponding, severe wetness, low strength, subsidence

Septic tank absorption fields
Major management concerns: Cathro—restricted permeability, ponding, low strength, severe wetness; Lupton—ponding, low strength, subsidence, severe wetness

Interpretive Groups

Land capability classification: Cathro—6w; Lupton—6w
Michigan soil management group: Cathro—M/3c; Lupton—Mc
Important farmland classification: Not prime farmland
Hydric soil status: Cathro—hydric; Lupton—hydric
Habitat type: Cathro—TTM; Lupton—TTM

93A—Ruse-Ensign complex, 0 to 3 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Ruse and similar soils—25 to 60 percent
Ensign and similar soils—20 to 45 percent
Minor components:
Reade and similar soils—0 to 10 percent
Summerville and similar soils—0 to 5 percent

Typical Profile

Ruse
A—0 to 7 inches; mucky loam

Bg—7 to 11 inches; sandy loam
Bw—11 to 15 inches; sandy loam
2R—15 inches; bedrock

Ensign
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; fine sandy loam
B/A—5 to 8 inches; fine sandy loam
Bw—8 to 15 inches; fine sandy loam
2R—15 inches; unweathered bedrock

Soil Properties and Qualities

Ruse
Parent material: Loamy till
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: 4 to 20 inches to lithic bedrock
Drainage class: Poorly drained
Available water capacity: About 2.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.5 foot (March, April, May, October, November)

Ensign
Parent material: Loamy till
Slope: 0 to 3 percent
Surface runoff class: Low
Potential for frost action: High
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Available water capacity: About 2.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 0.5 foot to 1.2 feet (May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Ruse—seedling mortality, windthrow hazard, depth to bedrock, severe wetness; Ensign—seedling mortality, windthrow hazard, depth to bedrock

Building site development
Major management concerns: Ruse—ponding, severe wetness; Ensign—depth to bedrock, seasonal wetness

Septic tank absorption fields
Major management concerns: Ruse—ponding, depth to bedrock, severe wetness; Ensign—depth to bedrock, severe wetness

Interpretive Groups

Land capability classification: Ruse—7w; Ensign—3w
Michigan soil management group: Ruse—Rbc; Ensign—Rbc
Important farmland classification: Not prime farmland
Hydric soil status: Ruse—hydric; Ensign—not hydric
Habitat type: Ruse—TTM; Ensign—TM

98B—Guardlake fine sandy loam, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Guardlake and similar soils—85 to 100 percent
Minor components:
Springlake and similar soils—0 to 10 percent
Heinz and similar soils—0 to 10 percent
Trenary and similar soils—0 to 7 percent

Typical Profile

Guardlake
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; fine sandy loam
E—2 to 4 inches; fine sandy loam
Bhs—4 to 13 inches; fine sandy loam
2C—13 to 80 inches; very gravelly sand

Soil Properties and Qualities

Parent material: Loamy glaciofluvial deposits over gravelly glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: None

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: Ga
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AVO

98D—Guardlake fine sandy loam, 6 to 15 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Guardlake and similar soils—90 to 100 percent
Minor components:
Springlake and similar soils—0 to 10 percent

Typical Profile

Guardlake
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; fine sandy loam
E—2 to 4 inches; fine sandy loam
Bhs—4 to 13 inches; fine sandy loam
2C—13 to 80 inches; very gravelly sand

Soil Properties and Qualities

Parent material: Loamy glaciofluvial deposits over gravelly glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: None

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: Ga
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AVO

98E—Guardlake fine sandy loam, 15 to 35 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Guardlake and similar soils—100 percent

Typical Profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; fine sandy loam
E—2 to 4 inches; fine sandy loam
Bhs—4 to 13 inches; fine sandy loam
2C—13 to 80 inches; very gravelly sand

Soil Properties and Qualities

Parent material: Loamy glaciofluvial deposits over gravelly glaciofluvial deposits
Slope: 15 to 35 percent
Surface runoff class: High
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Erosion, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: Ga
Important farmland classification: Not prime farmland

Hydric soil status: Not hydric
Habitat type: AVO

116F—Udipsamments and Udorthents, nearly level to very steep

Map Unit Composition

Major components:
Udipsamments and similar soils—0 to 100 percent
Udorthents and similar soils—0 to 100 percent

Use and Management

Dominant land use: Urban land or idle areas
- Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: None assigned
Michigan soil management group: None assigned
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: None assigned

119—Landfill

General Description

- This map unit consists of areas of disturbed soils. Onsite investigation is needed to determine the suitability for specific uses.

120A—Charlevoix-Ensley complex, 0 to 3 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Charlevoix and similar soils—40 to 70 percent
Ensley and similar soils—20 to 50 percent
Minor components:
Shoepac and similar soils—0 to 10 percent
Cathro and similar soils—0 to 10 percent
Trenary and similar soils—0 to 5 percent
Traunik and similar soils—0 to 3 percent

Typical Profile

Charlevoix
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 5 inches; silt loam
Bhs—5 to 7 inches; silt loam
Bs—7 to 12 inches; silt loam
2E/B—12 to 16 inches; fine sandy loam, loamy fine sand

2B/E—16 to 27 inches; cobbly fine sandy loam, cobbly loamy fine sand
2C—27 to 80 inches; cobbly fine sandy loam

Ensley
Oa—0 to 5 inches; highly decomposed plant material
A—5 to 7 inches; mucky loam
Bw—7 to 19 inches; fine sandy loam
2C—19 to 80 inches; gravelly fine sandy loam

Soil Properties and Qualities

Charlevoix
Parent material: Eolian deposits over lodgment till
Slope: 0 to 3 percent
Surface runoff class: Very low
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 9.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: 0.5 foot to 7.0 feet (May)
Ponding: None

Ensley
Parent material: Lodgment till
Slope: 0 to 2 percent
Surface runoff class: Very low
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 8.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Deepest ponding: 0.5 foot (March, April, May, June, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Charlevoix—clayey textures, seedling mortality, windthrow hazard, seasonal wetness; Ensley—seedling mortality, windthrow hazard, seasonal wetness, severe wetness

Building site development
Major management concerns: Charlevoix—cutbanks caving, seasonal wetness; Ensley—ponding, severe wetness

Septic tank absorption fields
Major management concerns: Charlevoix—restricted permeability, severe wetness; Ensley—ponding, severe wetness

Interpretive Groups

Land capability classification: Charlevoix—3w; Ensley—5w
Michigan soil management group: Charlevoix—3b; Ensley—3c
Important farmland classification: Prime farmland where drained
Hydric soil status: Charlevoix—not hydric; Ensley—hydric
Habitat type: Charlevoix—TMC/TMC-D; Ensley—FI/TTM

122A—Wormet fine sandy loam, 0 to 3 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Wormet and similar soils—85 to 95 percent
Minor components:
Minocqua and similar soils—5 to 15 percent
Noseum and similar soils—0 to 10 percent

Typical Profile

Wormet
Oe—0 to 2 inches; highly decomposed plant material
E—2 to 5 inches; fine sandy loam
Bhs—5 to 7 inches; fine sandy loam
Bs1—7 to 12 inches; fine sandy loam
2Bs2—12 to 23 inches; sand
2C—23 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 4.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, seasonal wetness

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 3w
Michigan soil management group: 3/5b
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: TMC-D

123—Minocqua muck

Setting

Landform: Depressions on lake plains

Map Unit Composition

Major components:
Minocqua and similar soils—75 to 90 percent
Minor components:
Hendrie and similar soils—5 to 15 percent
Deford and similar soils—5 to 10 percent
Finch and similar soils—0 to 10 percent

Typical Profile

Minocqua
Oa—0 to 5 inches; muck
A—5 to 7 inches; mucky fine sandy loam
Eg—7 to 18 inches; very fine sandy loam
Bg—18 to 23 inches; very fine sandy loam
2Cg—23 to 80 inches; sand

Soil Properties and Qualities

Parent material: Loamy glaciolacustrine deposits over sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 6.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.5 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, seasonal wetness, severe wetness

Building site development
Major management concerns: Cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: 2.5c
Important farmland classification: Not prime farmland
Hydric soil status: Hydric
Habitat type: FMC

125B—Stutts-Kalkaska complex, 0 to 6 percent slopes

Setting

Landform: Outwash plains, kame terraces, disintegration moraines

Map Unit Composition

Major components:
Stutts and similar soils—50 to 75 percent
Kalkaska and similar soils—25 to 45 percent

Typical Profile

Stutts
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; fine sandy loam
E—2 to 7 inches; fine sandy loam
Bhs—7 to 9 inches; fine sandy loam
Bs1—9 to 13 inches; sandy loam
Bs2—13 to 19 inches; sandy loam
2BC,2C—19 to 80 inches; sand

Kalkaska
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 6 inches; loamy sand
Bhs—6 to 8 inches; loamy sand
Bs1—8 to 12 inches; loamy sand
Bs2—12 to 23 inches; sand
BC—23 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Stutts
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 5.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Kalkaska
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Building site development

Forestland
Major management concerns: Stutts—none; Kalkaska—sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: Stutts—4e; Kalkaska—3s
Michigan soil management group: Stutts—4a; Kalkaska—4a
Important farmland classification: Not prime farmland
Hydric soil status: Stutts—not hydric; Kalkaska—not hydric
Habitat type: Stutts—ATD; Kalkaska—ATD

125D—Stutts-Kalkaska complex, 6 to 15 percent slopes

Setting

Landform: Kame terraces, outwash plains, disintegration moraines

Map Unit Composition

Major components:
Stutts and similar soils—50 to 75 percent
Kalkaska and similar soils—15 to 35 percent
Minor components:
Alcona and similar soils—5 to 15 percent

Typical Profile

Stutts
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; fine sandy loam
E—2 to 7 inches; fine sandy loam
Bhs—7 to 9 inches; fine sandy loam
Bs1—9 to 13 inches; sandy loam

Bs2—13 to 19 inches; sandy loam
2BC,2C—19 to 80 inches; sand

Kalkaska
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 6 inches; loamy sand
Bhs—6 to 8 inches; loamy sand
Bs1—8 to 12 inches; loamy sand
Bs2—12 to 23 inches; sand
BC—23 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Stutts
Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 5.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Kalkaska
Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Stutts—none; Kalkaska—sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: Stutts—4e; Kalkaska—3s
Michigan soil management group: Stutts—4a; Kalkaska—4a

Important farmland classification: Not prime farmland
Hydric soil status: Stutts—not hydric; Kalkaska—not hydric
Habitat type: Stutts—ATD; Kalkaska—ATD

125E—Stutts-Kalkaska complex, 15 to 35 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Stutts and similar soils—40 to 60 percent
Kalkaska and similar soils—40 to 60 percent

Typical Profile

Stutts
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; fine sandy loam
E—2 to 7 inches; fine sandy loam
Bhs—7 to 9 inches; fine sandy loam
Bs1—9 to 13 inches; sandy loam
Bs2—13 to 19 inches; sandy loam
2BC,2C—19 to 80 inches; sand

Kalkaska
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 6 inches; loamy sand
Bhs—6 to 8 inches; loamy sand
Bs1—8 to 12 inches; loamy sand
Bs2—12 to 23 inches; sand
BC—23 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Stutts
Parent material: Sandy glaciofluvial deposits
Slope: 15 to 35 percent
Surface runoff class: Medium
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 5.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Kalkaska
Parent material: Sandy glaciofluvial deposits
Slope: 15 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained
Available water capacity: About 3.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Stutts—erosion, slope; Kalkaska—erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: Stutts—4e; Kalkaska—3s
Michigan soil management group: Stutts—4a; Kalkaska—4a
Important farmland classification: Not prime farmland
Hydric soil status: Stutts—not hydric; Kalkaska—not hydric
Habitat type: Stutts—ATD; Kalkaska—ATD

131B—Furlong-Shingleton complex, 1 to 6 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Furlong and similar soils—40 to 60 percent
Shingleton and similar soils—30 to 50 percent
Minor components:
Longrie and similar soils—0 to 10 percent
Namur and similar soils—0 to 10 percent

Typical Profile

Furlong
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 2 inches; sand
E—2 to 5 inches; sand
Bhs—5 to 7 inches; sand
Bs—7 to 19 inches; sand
C—19 to 22 inches; sand
2R—22 inches; unweathered bedrock

Shingleton
A—0 to 1 inch; loamy sand
E—1 to 7 inches; loamy sand

Bhs—7 to 8 inches; loamy sand
Bs—8 to 11 inches; loamy sand
2R—11 inches; unweathered bedrock

Soil Properties and Qualities

Furlong
Parent material: Sandy outwash
Slope: 1 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Available water capacity: About 1.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Shingleton
Parent material: Sandy outwash
Slope: 1 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Available water capacity: About 0.9 inch to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Furlong—sandy textures, seedling mortality, depth to bedrock; Shingleton—seedling mortality, windthrow hazard, depth to bedrock

Building site development
Major management concerns: Cutbanks caving, depth to bedrock

Septic tank absorption fields
Major management concerns: Poor filtering capacity, depth to bedrock

Interpretive Groups

Land capability classification: Furlong—4s; Shingleton—4s
Michigan soil management group: Furlong—4/Ra; Shingleton—Ra
Important farmland classification: Not prime farmland
Hydric soil status: Furlong—not hydric; Shingleton—not hydric
Habitat type: Furlong—AVO; Shingleton—AVO

141A—Halfaday sand, 0 to 3 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Halfaday and similar soils—85 to 95 percent
Minor components:
Au Gres and similar soils—5 to 10 percent
Kalkaska and similar soils—0 to 10 percent

Typical Profile

Halfaday
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 9 inches; sand
Bhs—9 to 10 inches; sand
Bs—10 to 35 inches; sand
C—35 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy outwash
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D/TMC-D

145B—Noseum fine sandy loam, 0 to 4 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Noseum and similar soils—80 to 100 percent
Minor components:
Paquin and similar soils—0 to 15 percent
Bodi and similar soils—0 to 10 percent

Typical Profile

Noseum
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 5 inches; fine sandy loam
Bhs—5 to 7 inches; fine sandy loam
Bs1—7 to 19 inches; fine sandy loam
2Bs2—19 to 27 inches; sand
2C—27 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 0 to 4 percent
Surface runoff class: Very low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 5.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: None

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD

155B—Karlin loamy fine sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Karlin and similar soils—100 percent

Typical Profile

A—0 to 3 inches; loamy fine sand
E—3 to 7 inches; loamy fine sand
Bs—7 to 17 inches; loamy fine sand
BC—17 to 31 inches; sand
C—31 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Building site development

Forestland
Major management concerns: None

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: 4a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: TMV

160B—Paquin-Finch sands, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Paquin and similar soils—40 to 70 percent
Finch and similar soils—30 to 60 percent

Typical Profile

Paquin
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 12 inches; sand
Bhs—12 to 14 inches; sand
Bhsm—14 to 17 inches; sand
Bsm—17 to 27 inches; sand
BC—27 to 34 inches; sand
C—34 to 80 inches; sand

Finch
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 11 inches; sand
Bsm—11 to 42 inches; sand
C—42 to 80 inches; fine sand

Soil Properties and Qualities

Paquin
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: 10 to 16 inches to ortstein
Drainage class: Moderately well drained
Available water capacity: About 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Finch
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: 7 to 13 inches to ortstein
Drainage class: Somewhat poorly drained
Available water capacity: About 2.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Paquin—seedling mortality; Finch—seedling mortality, windthrow hazard

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, depth to ortstein, severe wetness

Interpretive Groups

Land capability classification: Paquin—6s; Finch—4w
Michigan soil management group: Paquin—5a-h; Finch—5b-h
Important farmland classification: Not prime farmland
Hydric soil status: Paquin—not hydric; Finch—not hydric
Habitat type: Paquin—ATD-D; Finch—TMC-V

218—Pits, quarry

Map Unit Composition

Major components:
Pits, quarry—100 percent

Use and Management

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

219B—Cublake sand, 0 to 6 percent slopes

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Cublake and similar soils—100 percent

Typical Profile

A—0 to 3 inches; sand
E—3 to 4 inches; sand
Bs—4 to 23 inches; sand
BC—23 to 32 inches; sand
C—32 to 48 inches; sand
2C—48 to 80 inches; stratified fine sand to loamy fine sand to fine sandy loam to silty clay loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits over loamy glaciolacustrine deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained
Available water capacity: About 6.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AQV

222—Histosols and Aquents, ponded

Setting

Landform: Marshes

Map Unit Composition

Major components:
Histosols and similar soils—0 to 100 percent
Aquents and similar soils—0 to 100 percent

Typical Profile

Histosols
0 to 51 inches; muck
51 to 80 inches; variable

Aquents
0 to 80 inches; variable

Soil Properties and Qualities

Histosols
Parent material: Organic material
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained
Available water capacity: Not rated
Shrink-swell potential: Not rated
Permeability: Very slow
Flooding: None
Depth to seasonal high water table: At the surface all year
Deepest ponding: 1 foot all year

Aquents
Parent material: Sandy material underlain by loamy till, lacustrine sediments, or sandy deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: Not rated
Shrink-swell potential: Not rated
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: At the surface all year
Deepest ponding: 1 foot all year

Use and Management

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

Interpretive Groups

Land capability classification: Histosols—8w; Aquents—8w
Michigan soil management group: None assigned
Important farmland classification: Not prime farmland
Hydric soil status: Histosols—hydric; Aquents—hydric
Habitat type: None assigned

225B—Cusino loamy sand, 1 to 6 percent slopes

Setting

Landform: Moraines, outwash plains, kame terraces

Map Unit Composition

Major components:
Cusino and similar soils—85 to 100 percent
Minor components:
Waiska and similar soils—0 to 15 percent

Typical Profile

Cusino
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 8 inches; loamy sand
Bhs—8 to 10 inches; loamy sand
Bs—10 to 17 inches; sand
C—17 to 80 inches; stratified gravelly sand to sand

Soil Properties and Qualities

Parent material: Sandy and gravelly glaciofluvial deposits
Slope: 1 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

248B—Escanaba-Greylock complex, 1 to 6 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Escanaba and similar soils—40 to 60 percent
Greylock and similar soils—30 to 50 percent
Minor components:
Kalkaska and similar soils—0 to 10 percent
Munising, calcareous substratum, and similar soils—0 to 10 percent
Blue Lake and similar soils—0 to 5 percent
Cookson and similar soils—0 to 5 percent
Charlevoix and similar soils—0 to 5 percent

Typical Profile

Escanaba
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 3 inches; sand
E—3 to 6 inches; loamy fine sand

Bs—6 to 26 inches; loamy fine sand
2E/B—26 to 35 inches; fine sandy loam
2Bt—35 to 42 inches; fine sandy loam
2C—42 to 80 inches; gravelly fine sandy loam

Greylock
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 6 inches; fine sandy loam
E—6 to 7 inches; sandy loam
Bhs—7 to 9 inches; sandy loam
Bs—9 to 19 inches; sandy loam
E/B—19 to 26 inches; sandy loam
B/E—26 to 34 inches; sandy loam
C—34 to 80 inches; sandy loam

Soil Properties and Qualities

Escanaba
Parent material: Sandy glaciofluvial deposits over loamy lodgment till
Slope: 1 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 6.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Greylock
Parent material: Loamy lodgment till
Slope: 1 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 7.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Escanaba—seedling mortality; Greylock—none

Building site development
Major management concerns: Escanaba—cutbanks caving; Greylock—none

Septic tank absorption fields
Major management concerns: None

Interpretive Groups

Land capability classification: Escanaba—3s; Greylock—2e
Michigan soil management group: Escanaba—4/2a; Greylock—3a
Important farmland classification: Not prime farmland
Hydric soil status: Escanaba—not hydric; Greylock—not hydric
Habitat type: Escanaba—AVO/ATD; Greylock—AVO/ATD

249A—Iosco sand, 0 to 3 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Iosco and similar soils—90 to 100 percent
Minor components:
Growton and similar soils—0 to 10 percent

Typical Profile

Iosco
Oa—0 to 6 inches; highly decomposed plant material
E—6 to 11 inches; sand
Bs—11 to 27 inches; loamy sand
2Bt—27 to 38 inches; loam
2C—38 to 80 inches; loam

Soil Properties and Qualities

Parent material: Sandy outwash over loamy till
Slope: 0 to 3 percent
Surface runoff class: Very low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 7.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, seasonal wetness

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 3w
Michigan soil management group: 4/2b
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: TMC-D

267A—Finch sand, 0 to 3 percent slopes

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Finch and similar soils—80 to 100 percent
Minor components:
Spot and similar soils—0 to 15 percent
Paquin and similar soils—0 to 10 percent

Typical Profile

Finch
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 11 inches; sand
Bsm—11 to 42 inches; sand
C—42 to 80 inches; fine sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: 7 to 13 inches to ortstein
Drainage class: Somewhat poorly drained
Available water capacity: About 2.8 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, seasonal wetness

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, depth to ortstein, severe wetness

Interpretive Groups

Land capability classification: 4w
Michigan soil management group: 5b-h
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: TMC-V

287B—Hiawatha fine sandy loam, 0 to 6 percent slopes

Setting

Landform: Stream terraces

Map Unit Composition

Major components:
Hiawatha and similar soils—80 to 90 percent
Minor components:
Kalkaska and similar soils—5 to 15 percent
Seney and similar soils—5 to 10 percent

Typical Profile

Hiawatha
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 6 inches; fine sandy loam
2C—6 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 3.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 5.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: 5.7a

Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD

289B—Wallace sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains, lake plains

Map Unit Composition

Major components:
Wallace and similar soils—80 to 100 percent
Minor components:
Paquin and similar soils—0 to 15 percent
Finch and similar soils—0 to 10 percent

Typical Profile

Wallace
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 10 inches; sand
Bhs—10 to 11 inches; sand
Bhsm—11 to 21 inches; sand
Bsm—21 to 26 inches; sand
BC—26 to 59 inches; sand
C—59 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 0 to 6 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: 8 to 18 inches to ortstein
Drainage class: Well drained
Available water capacity: About 2.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity, depth to ortstein

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a-h

Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD

289D—Wallace sand, 6 to 15 percent slopes

Setting

Landform: Outwash plains, lake plains

Map Unit Composition

Major components:
Wallace and similar soils—85 to 100 percent
Minor components:
Paquin and similar soils—0 to 10 percent
Finch and similar soils—0 to 10 percent

Typical Profile

Wallace
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 10 inches; sand
Bhs—10 to 11 inches; sand
Bhsm—11 to 21 inches; sand
Bsm—21 to 26 inches; sand
BC—26 to 59 inches; sand
C—59 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits, sandy eolian deposits
Slope: 6 to 15 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: 8 to 18 inches to ortstein
Drainage class: Well drained
Available water capacity: About 2.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity, depth to ortstein

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a-h

Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD

289E—Wallace sand, 15 to 35 percent slopes

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Wallace and similar soils—90 to 100 percent
Minor components:
Spot and similar soils—0 to 10 percent

Typical Profile

Wallace
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 10 inches; sand
Bhs—10 to 11 inches; sand
Bhsm—11 to 21 inches; sand
Bsm—21 to 26 inches; sand
BC—26 to 59 inches; sand
C—59 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits, sandy eolian deposits
Slope: 15 to 35 percent
Surface runoff class: Medium
Potential for frost action: Low
Depth to restrictive feature: 8 to 18 inches to ortstein
Drainage class: Well drained
Available water capacity: About 2.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity, depth to ortstein

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a-h
Important farmland classification: Not prime farmland

Hydric soil status: Not hydric
Habitat type: ATD

294B—Munising-Yalmer-Frohling complex, calcareous substratum, 1 to 6 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Munising, calcareous substratum, and similar soils—30 to 50 percent
Yalmer, calcareous substratum, and similar soils—20 to 40 percent
Frohling, calcareous substratum, and similar soils—15 to 35 percent
Minor components:
Greylock and similar soils—0 to 10 percent
Ensley and similar soils—0 to 5 percent
Cookson and similar soils—0 to 5 percent
Escanaba and similar soils—0 to 5 percent

Typical Profile

Munising
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 3 inches; fine sandy loam
Bhs—3 to 6 inches; fine sandy loam
Bs—6 to 23 inches; fine sandy loam
2E/Bx—23 to 38 inches; loamy sand, fine sandy loam
2B/Ex—38 to 50 inches; fine sandy loam, loamy sand
2BC—50 to 63 inches; gravelly fine sandy loam
2C—63 to 80 inches; gravelly fine sandy loam

Yalmer
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; loamy sand
E—2 to 5 inches; sand
Bhs—5 to 16 inches; loamy sand
Bs—16 to 28 inches; gravelly loamy sand
2E/Bx—28 to 36 inches; loamy sand
2B/Ex—36 to 62 inches; fine sandy loam
3C—62 to 80 inches; gravelly fine sandy loam

Frohling
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 5 inches; fine sandy loam
Bs—5 to 24 inches; fine sandy loam
B/Ex—24 to 73 inches; loamy fine sand
3C—73 to 80 inches; gravelly fine sandy loam

Soil Properties and Qualities

Munising
Parent material: Eolian deposits over lodgment till
Slope: 1 to 6 percent
Surface runoff class: Very low
Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan
Drainage class: Moderately well drained
Available water capacity: About 5.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Very slow
Flooding: None
Depth to seasonal high water table: 1 to 2 feet (April)
Ponding: None

Yalmer
Parent material: Outwash over lodgment till
Slope: 1 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: 20 to 40 inches to a fragipan
Drainage class: Moderately well drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Very slow
Flooding: None
Depth to seasonal high water table: 1.0 to 2.5 feet (April)
Ponding: None

Frohling
Parent material: Eolian deposits over lodgment till
Slope: 4 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: 15 to 25 inches to a fragipan
Drainage class: Well drained
Available water capacity: About 4.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Very slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Munising—seedling mortality, soil rutting, windthrow hazard, seasonal wetness; Yalmer—sandy textures, seedling mortality, soil rutting, windthrow hazard, seasonal wetness; Frohling—none

Building site development
Major management concerns: Munising and Yalmer—cutbanks caving, seasonal wetness; Frohling—cutbanks caving

Septic tank absorption fields
Major management concerns: Munising—restricted permeability, severe wetness; Yalmer—poor filtering capacity, restricted permeability, severe wetness; Frohling—restricted permeability

Interpretive Groups

Land capability classification: Munising—2e; Yalmer—4s; Frohling—2e
Michigan soil management group: Munising—3a-af; Yalmer—4a-a; Frohling—3a-f

Important farmland classification: Not prime farmland
Hydric soil status: Munising—not hydric; Yalmer—not hydric; Frohling—not hydric
Habitat type: Munising—ATD/AVO; Yalmer—ATD/AVO; Frohling—ATD/AVO

295E—Dillingham-Kalkaska complex, 15 to 35 percent slopes

Setting

Landform: Disintegration moraines

Map Unit Composition

Major components:
Dillingham and similar soils—35 to 55 percent
Kalkaska and similar soils—30 to 50 percent
Minor components:
Dawson and similar soils—0 to 10 percent
Alcona and similar soils—0 to 10 percent
Voelker and similar soils—0 to 5 percent

Typical Profile

Dillingham
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 8 inches; loamy sand
Bhs—8 to 11 inches; loamy sand
Bs—11 to 21 inches; loamy fine sand
E/Bx—21 to 31 inches; fine sand, loamy fine sand
C—31 to 80 inches; sand

Kalkaska
A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Dillingham
Parent material: Sandy glaciofluvial deposits
Slope: 15 to 35 percent
Surface runoff class: High
Potential for frost action: Low
Depth to restrictive feature: 16 to 28 inches to a fragipan
Drainage class: Well drained
Available water capacity: About 3.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Kalkaska
Parent material: Glaciofluvial deposits, outwash
Slope: 15 to 35 percent

Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Building site development

Forestland
Major management concerns: Dillingham—erosion, sandy textures, windthrow hazard, slope; Kalkaska—erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Dillingham—slope, restricted permeability, depth to a fragipan; Kalkaska—slope, poor filtering capacity

Interpretive Groups

Land capability classification: Dillingham—7s; Kalkaska—7s
Michigan soil management group: Dillingham—4a; Kalkaska—5a
Important farmland classification: Not prime farmland
Hydric soil status: Dillingham—not hydric; Kalkaska—not hydric
Habitat type: Dillingham—ATD-D; Kalkaska—ATD-D

355B—Springlake loamy sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Springlake and similar soils—85 to 100 percent
Minor components:
Guardlake and similar soils—0 to 15 percent

Typical Profile

Springlake
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; loamy sand
E—7 to 9 inches; sand
Bhs—9 to 14 inches; sand
Bs—14 to 23 inches; sand
2BC—23 to 26 inches; sand
2C—26 to 80 inches; gravelly sand

Soil Properties and Qualities

Parent material: Gravelly glaciofluvial deposits, sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 2.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Very rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Building site development

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD

366B—Gilchrist sand, 0 to 6 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Gilchrist and similar soils—85 to 95 percent
Minor components:
Cozy and similar soils—5 to 15 percent

Typical Profile

Gilchrist
Oe—0 to 3 inches; moderately decomposed plant material
E—3 to 7 inches; sand
Bhs—7 to 9 inches; loamy sand
Bs—9 to 26 inches; sand
2Cd—26 to 80 inches; extremely gravelly sandy loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits over loamy till
Slope: 0 to 6 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: 26 inches to dense material
Drainage class: Moderately well drained
Available water capacity: About 2.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Very slow
Flooding: None
Depth to seasonal high water table: 1.0 to 2.2 feet (April)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality, windthrow hazard

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, restricted permeability, depth to dense material, severe wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 4a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD

367B—Cozy fine sandy loam, 0 to 6 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Cozy and similar soils—85 to 100 percent
Minor components:
Gilchrist and similar soils—0 to 10 percent
Longrie and similar soils—0 to 10 percent

Typical Profile

Cozy
Oa—0 to 5 inches; highly decomposed plant material
E—5 to 6 inches; fine sandy loam
Bhs—6 to 10 inches; fine sandy loam
Bs—10 to 14 inches; sandy loam
Cd—14 to 80 inches; very gravelly sandy loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits over loamy till
Slope: 0 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: 14 inches to dense material
Drainage class: Moderately well drained
Available water capacity: About 2.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Very slow
Flooding: None
Depth to seasonal high water table: 1.0 to 1.5 feet (April)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard

Building site development
Major management concerns: Seasonal wetness

Septic tank absorption fields
Major management concerns: Restricted permeability, depth to ddense material, severe wetness

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: Ga-d
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AVO

400B—Amadon-Rock outcrop complex, 1 to 6 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Amadon and similar soils—60 to 85 percent
Rock outcrop—15 to 40 percent

Typical Profile

Amadon
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 8 inches; sandy loam
Bhs—8 to 10 inches; sandy loam
Bs—10 to 15 inches; sandy loam
2R—15 inches; bedrock

Soil Properties and Qualities

Amadon
Parent material: Till
Slope: 1 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Available water capacity: About 2.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Soil rutting, windthrow hazard, depth to bedrock, rock outcrop

Building site development
Major management concerns: Depth to bedrock

Septic tank absorption fields
Major management concerns: Depth to bedrock

Interpretive Groups

Land capability classification: Amadon—3s
Michigan soil management group: Amadon—Ra
Important farmland classification: Not prime farmland
Hydric soil status: Amadon—not hydric
Habitat type: Amadon—ATD

401A—Ingalls sand, 0 to 3 percent slopes

Setting

Landform: Lake plains

Map Unit Composition

Major components:
Ingalls and similar soils—85 to 100 percent
Minor components:
Charlevoix and similar soils—0 to 5 percent
Ensley and similar soils—0 to 5 percent
Deford and similar soils—0 to 5 percent
Munising, calcareous substratum, and similar soils—0 to 5 percent

Typical Profile

Ingalls
Oa—0 to 4 inches; highly decomposed plant material
A—4 to 5 inches; sand
E—5 to 14 inches; sand

Bhs—14 to 16 inches; sand
Bw—16 to 35 inches; sand
2C—35 to 80 inches; stratified silt, stratified silt loam

Soil Properties and Qualities

Parent material: Glaciofluvial deposits over glaciolacustrine deposits
Slope: 0 to 3 percent
Surface runoff class: Very low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 9.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, seasonal wetness

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 3w
Michigan soil management group: 4/2b
Important farmland classification: Prime farmland where drained
Hydric soil status: Not hydric
Habitat type: TMC-D

490B—Pelkie, occasionally flooded-Arnheim, frequently flooded, complex, 0 to 4 percent slopes

Setting

Landform: Flood plains

Map Unit Composition

Major components:
Pelkie, occasionally flooded, and similar soils—50 to 75 percent
Arnheim, frequently flooded, and similar soils—15 to 35 percent
Minor components:
Sturgeon and similar soils—5 to 15 percent

Typical Profile

Pelkie
A—0 to 6 inches; fine sandy loam

C1—6 to 38 inches; loamy fine sand
C2—38 to 80 inches; sand

Arnheim
A—0 to 6 inches; mucky silt loam
Bg—6 to 32 inches; silt loam
C—32 to 80 inches; stratified fine sand to fine sandy loam to silt loam

Soil Properties and Qualities

Pelkie
Parent material: Sandy alluvium
Slope: 0 to 4 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 4.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Frequency of flooding: Occasional (March, April, May)
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Arnheim
Parent material: Coarse-loamy alluvium
Slope: 0 to 1 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 10.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Frequency of flooding: Frequent (March, April, May)
Depth to seasonal high water table: At the surface (January, February, March, April, May, November, December)
Months in which ponding does not occur: January, February, March, April, May, December
Deepest ponding: 0.2 foot (June, July, August, September, October, November)

Use and Management

Dominant land use: Forestland
Other uses: Wildlife habitat

Forestland
Major management concerns: Pelkie—flooding; Arnheim—seedling mortality, windthrow hazard, severe wetness, flooding

Building site development
Major management concerns: Pelkie—cutbanks caving, flooding, seasonal wetness; Arnheim—cutbanks caving, ponding, flooding, severe wetness

Septic tank absorption fields
Major management concerns: Pelkie—poor filtering capacity, flooding, seasonal wetness; Arnheim—flooding

Interpretive Groups

Land capability classification: Pelkie—4s; Arnheim—5w
Michigan soil management group: Pelkie—L-4a; Arnheim—L-2c
Important farmland classification: Not prime farmland
Hydric soil status: Pelkie—not hydric; Arnheim—hydric
Habitat type: Pelkie—ATD-D; Arnheim—FMC

491B—Neconish-Deford, rarely flooded-Wainola complex, 0 to 6 percent slopes

Setting

Landform: Stream terraces

Map Unit Composition

Major components:
Neconish and similar soils—25 to 60 percent
Deford, rarely flooded, and similar soils—15 to 30 percent
Wainola and similar soils—10 to 25 percent
Minor components:
Tawas, frequently flooded, and similar soils—0 to 10 percent
Rousseau and similar soils—0 to 10 percent
Arnheim, frequently flooded, and similar soils—0 to 10 percent

Typical Profile

Neconish
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 8 inches; fine sand
Bs—8 to 21 inches; fine sand
BC—21 to 32 inches; fine sand
C—32 to 80 inches; fine sand

Deford
Oa—0 to 4 inches; muck
C—4 to 80 inches; fine sand

Wainola
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 12 inches; fine sand
Bs1—12 to 18 inches; fine sand
Bs2—18 to 27 inches; fine sand
BC—27 to 41 inches; fine sand
C—41 to 80 inches; very fine sand

Soil Properties and Qualities

Neconish
Parent material: Outwash, sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low

Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Deford
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 5.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Frequency of flooding: Rare (March, April, May, October)
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, November, December
Deepest ponding: 0.5 foot (March, April, May, September, October)

Wainola
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Neconish—seedling mortality; Deford—seedling mortality, windthrow hazard, severe wetness, flooding; Wainola—seedling mortality, windthrow hazard

Building site development
Major management concerns: Neconish—cutbanks caving, seasonal wetness; Deford—cutbanks caving, ponding, flooding, severe wetness; Wainola—cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Neconish—poor filtering capacity, severe wetness; Deford—poor filtering capacity, flooding; Wainola—poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: Neconish—4s; Deford—7w; Wainola—4w
Michigan soil management group: Neconish—5.3a; Deford—L-4c; Wainola—5b

Important farmland classification: Not prime farmland
Hydric soil status: Neconish—not hydric; Deford—hydric; Wainola—not hydric
Habitat type: Neconish—AQV; Deford—FMC; Wainola—TMC

492D—Wurtsmith-Duck-Rubicon complex, 0 to 15 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Wurtsmith and similar soils—35 to 55 percent
Duck and similar soils—20 to 40 percent
Rubicon and similar soils—10 to 20 percent
Minor components:
Seney and similar soils—5 to 15 percent

Typical Profile

Wurtsmith
A—0 to 2 inches; sand
E—2 to 7 inches; sand
Bw—7 to 15 inches; sand
BC—15 to 26 inches; sand
C—26 to 80 inches; sand

Duck
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 6 inches; fine sandy loam
2Bw—6 to 15 inches; sand
2C—15 to 80 inches; sand

Rubicon
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Wurtsmith
Parent material: Sandy outwash, beach sand
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Duck
Parent material: Sandy outwash
Slope: 0 to 4 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Rubicon
Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Wurtsmith—sandy textures, seedling mortality; Duck—seedling mortality, soil rutting; Rubicon—sandy textures, seedling mortality

Building site development
Major management concerns: Wurtsmith and Duck—cutbanks caving, seasonal wetness; Rubicon—cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Wurtsmith and Duck—poor filtering capacity, seasonal wetness; Rubicon—slope, poor filtering capacity

Interpretive Groups

Land capability classification: Wurtsmith—4s; Duck—4s; Rubicon—7s
Michigan soil management group: Wurtsmith—5.7a; Duck—5a; Rubicon—5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Wurtsmith—not hydric; Duck—not hydric; Rubicon—not hydric
Habitat type: Wurtsmith—AQV; Duck—TMC-D; Rubicon—AQV

493A—Deford-Meehan-Seney complex, 0 to 3 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Deford and similar soils—30 to 50 percent
Meehan and similar soils—15 to 35 percent
Seney and similar soils—15 to 25 percent
Minor components:
Wurtsmith and similar soils—0 to 15 percent
Neconish and similar soils—0 to 10 percent

Typical Profile

Deford
Oa—0 to 4 inches; muck
C—4 to 80 inches; fine sand

Meehan
Oa—0 to 3 inches; highly decomposed plant material
E—3 to 7 inches; loamy sand
Bw—7 to 11 inches; sand
C1—11 to 23 inches; sand
C2—23 to 80 inches; sand

Seney
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; fine sandy loam
2Bw—5 to 14 inches; loamy sand
2C—14 to 80 inches; sand

Soil Properties and Qualities

Deford
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 5.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.5 foot (March, April, May, October, November)

Meehan
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 3.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid

Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Seney
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Deford—seedling mortality, windthrow hazard, severe wetness; Meehan—seedling mortality, windthrow hazard, seasonal wetness; Seney—seedling mortality, windthrow hazard

Building site development
Major management concerns: Deford—cutbanks caving, ponding, severe wetness; Meehan and Seney—cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Deford—poor filtering capacity, ponding, severe wetness; Meehan and Seney—poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: Deford—5w; Meehan—5s; Seney—5s
Michigan soil management group: Deford—4c; Meehan—5a; Seney—5a
Important farmland classification: Not prime farmland
Hydric soil status: Deford—hydric; Meehan—not hydric; Seney—not hydric
Habitat type: Deford—FMC; Meehan—TMC-V; Seney—TMC-V

498B—Bursaw-Beavertail complex, 0 to 6 percent slopes

Setting

Landform: Beach ridges

Map Unit Composition

Major components:
Bursaw and similar soils—45 to 65 percent
Beavertail and similar soils—15 to 35 percent
Minor components:
Esau and similar soils—5 to 15 percent
Shuberts and similar soils—5 to 15 percent
Alpena and similar soils—0 to 10 percent

Typical Profile

Bursaw
Oe—0 to 2 inches; moderately decomposed plant material
C—2 to 49 inches; stratified extremely gravelly coarse sand to sand
2Cd—49 to 80 inches; gravelly sandy loam

Beavertail
Oa—0 to 8 inches; muck
Bw—8 to 16 inches; very gravelly fine sandy loam
Cg—16 to 29 inches; very gravelly fine sandy loam
Cd—29 to 80 inches; very gravelly fine sandy loam

Soil Properties and Qualities

Bursaw
Parent material: Gravelly outwash over loamy till
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: 49 inches to dense material
Drainage class: Moderately well drained
Available water capacity: About 2.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Very slow
Flooding: None
Depth to seasonal high water table: 2.6 to 6.7 feet (May)
Ponding: None

Beavertail
Parent material: Lodgment till
Slope: 0 to 2 percent
Surface runoff class: Very low
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Very slow
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Deepest ponding: 0.5 foot (March, April, May, June, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Bursaw—seedling mortality; Beavertail—seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Bursaw—cutbanks caving, seasonal wetness; Beavertail—ponding, severe wetness

Septic tank absorption fields
Major management concerns: Bursaw—poor filtering capacity, restricted permeability, dense material, seasonal wetness; Beavertail—restricted permeability, ponding, severe wetness

Interpretive Groups

Land capability classification: Bursaw—4s; Beavertail—5w
Michigan soil management group: Bursaw—5a; Beavertail—3c
Important farmland classification: Not prime farmland
Hydric soil status: Bursaw—not hydric; Beavertail—hydric
Habitat type: None assigned

505B—Graveraet fine sandy loam, 1 to 4 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Graveraet and similar soils—85 to 100 percent
Minor components:
Growton and similar soils—0 to 10 percent
Menominee, sandy substratum, and similar soils—0 to 10 percent

Typical Profile

Graveraet
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 7 inches; fine sandy loam
Bhs—7 to 10 inches; fine sandy loam
Bs—10 to 17 inches; fine sandy loam
E/Bx—17 to 33 inches; loamy sand, loam
B/E—33 to 48 inches; sandy clay loam, loamy sand
Bt—48 to 68 inches; sandy clay loam
C—68 to 80 inches; sandy loam

Soil Properties and Qualities

Parent material: Till
Slope: 1 to 4 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: 14 to 24 inches to a fragipan
Drainage class: Moderately well drained
Available water capacity: About 6.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Very slow
Flooding: None
Depth to seasonal high water table: 1 to 2 feet (April)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, soil rutting, windthrow hazard, seasonal wetness

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Restricted permeability, depth to a fragipan, severe wetness

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: 3a-f
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AVO/AVO-A

505D—Graveraet fine sandy loam, 6 to 15 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Graveraet and similar soils—90 to 100 percent
Minor components:
Growton and similar soils—0 to 10 percent

Typical Profile

Graveraet
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 7 inches; fine sandy loam
Bhs—7 to 10 inches; fine sandy loam
Bs—10 to 17 inches; fine sandy loam
E/Bx—17 to 33 inches; loamy sand, loam
B/E—33 to 48 inches; sandy clay loam, loamy sand
Bt—48 to 68 inches; sandy clay loam
C—68 to 80 inches; sandy loam

Soil Properties and Qualities

Parent material: Till
Slope: 6 to 15 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: 14 to 24 inches to a fragipan
Drainage class: Moderately well drained
Available water capacity: About 6.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Very slow
Flooding: None
Depth to seasonal high water table: 1 to 2 feet (April)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Soil rutting, windthrow hazard, seasonal wetness

Building site development
Major management concerns: Cutbanks caving, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Slope, restricted permeability, depth to a fragipan, severe wetness

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: 3a-f
Important farmland classification: Farmland of local importance
Hydric soil status: Not hydric
Habitat type: AVO

512A—Growton fine sandy loam, 0 to 3 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Growton and similar soils—85 to 100 percent
Minor components:
Graveraet and similar soils—0 to 10 percent
Ensley and similar soils—0 to 10 percent

Typical Profile

Growton
A—0 to 6 inches; fine sandy loam
E—6 to 18 inches; fine sandy loam
Bt—18 to 25 inches; fine sandy loam
2C—25 to 80 inches; gravelly fine sandy loam

Soil Properties and Qualities

Parent material: Lodgment till
Slope: 0 to 3 percent
Surface runoff class: Very low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 8.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Windthrow hazard

Building site development
Major management concerns: Seasonal wetness

Septic tank absorption fields
Major management concerns: Severe wetness

Interpretive Groups

Land capability classification: 2w
Michigan soil management group: 3b
Important farmland classification: Prime farmland where drained
Hydric soil status: Not hydric
Habitat type: AVO-CI

514B—Kalkaska sand, 0 to 6 percent slopes, burned

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kalkaska, burned, and similar soils—80 to 100 percent
Minor components:
Finch and similar soils—0 to 10 percent
Kinross and similar soils—0 to 10 percent

Typical Profile

Kalkaska
A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: TMV/TM

514D—Kalkaska sand, 6 to 15 percent slopes, burned

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kalkaska, burned, and similar soils—90 to 100 percent
Minor components:
Kinross and similar soils—0 to 5 percent
Finch and similar soils—0 to 5 percent

Typical Profile

Kalkaska
A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: TMV/TM

514E—Kalkaska sand, 15 to 50 percent slopes, burned

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kalkaska, burned, and similar soils—90 to 100 percent
Minor components:
Kinross and similar soils—0 to 5 percent
Finch and similar soils—0 to 5 percent

Typical Profile

Kalkaska
A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits, sandy outwash
Slope: 15 to 50 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: TMV/TM

515B—Vilas loamy sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Vilas and similar soils—90 to 100 percent
Minor components:
Au Gres and similar soils—0 to 10 percent

Typical Profile

Vilas
A—0 to 3 inches; loamy sand
E—3 to 5 inches; sand
Bs1—5 to 9 inches; loamy sand
Bs2—9 to 20 inches; sand
C—20 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 4a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AQV

516A—Deford-Meehan complex, 0 to 3 percent slopes, drained

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Deford, drained, and similar soils—45 to 75 percent
Meehan, drained, and similar soils—15 to 35 percent
Minor components:
Wurtsmith, drained, and similar soils—5 to 15 percent

Typical Profile

Deford
Oa—0 to 4 inches; muck
C—4 to 80 inches; fine sand

Meehan
Oa—0 to 3 inches; highly decomposed plant material
E—3 to 7 inches; loamy sand
Bw—7 to 11 inches; sand
C1—11 to 23 inches; sand
C2—23 to 80 inches; sand

Soil Properties and Qualities

Deford
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 5.5 inches to a depth of 60 inches
Shrink-swell potential: Low

Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Meehan
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 3.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 3.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Wildlife habitat

Forestland
Major management concerns: Deford—windthrow hazard, severe wetness; Meehan—seedling mortality, windthrow hazard

Building site development
Major management concerns: Cutbanks caving, severe wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: Deford—4s; Meehan—4s
Michigan soil management group: Deford—4c; Meehan—5a
Important farmland classification: Not prime farmland
Hydric soil status: Deford—not hydric; Meehan—not hydric
Habitat type: Deford—FMC; Meehan—TMC-V

517B—Mancelona sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Mancelona and similar soils—85 to 95 percent
Minor components:
Rubicon and similar soils—5 to 15 percent

Typical Profile

Mancelona
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 7 inches; sand
Bs—7 to 19 inches; loamy sand

2Bt—19 to 26 inches; loamy coarse sand
2C—26 to 80 inches; very gravelly sand

Soil Properties and Qualities

Parent material: Sandy and gravelly outwash
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: 4a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: TMV/TM

517D—Mancelona sand, 6 to 15 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Mancelona and similar soils—90 to 100 percent
Minor components:
Rubicon and similar soils—0 to 10 percent

Typical Profile

Mancelona
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 7 inches; sand
Bs—7 to 19 inches; loamy sand
2Bt—19 to 26 inches; loamy coarse sand
2C—26 to 80 inches; very gravelly sand

Soil Properties and Qualities

Parent material: Sandy and gravelly outwash
Slope: 6 to 15 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: 4a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: TMV/TM

518A—Deford-Seney complex, frequently flooded, 0 to 3 percent slopes

Setting

Landform: Flood plains

Map Unit Composition

Major components:
Deford, frequently flooded, and similar soils—25 to 50 percent
Seney, frequently flooded, and similar soils—15 to 45 percent
Minor components:
Duck, occasionally flooded, and similar soils—5 to 15 percent
Markey, frequently flooded, and similar soils—5 to 15 percent

Typical Profile

Deford
Oa—0 to 4 inches; muck
C—4 to 80 inches; fine sand

Seney
Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; fine sandy loam
2Bw—5 to 14 inches; loamy sand
2C—14 to 80 inches; sand

Soil Properties and Qualities

Deford
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 5.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Frequency of flooding: Frequent (April, May, October, November)
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Ponding: None

Seney
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Frequency of flooding: Frequent (April, May)
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Deford—windthrow hazard, severe wetness, flooding; Seney—seedling mortality, windthrow hazard, seasonal wetness, flooding

Building site development
Major management concerns: Deford—cutbanks caving, flooding, severe wetness; Seney—cutbanks caving, flooding, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, flooding

Interpretive Groups

Land capability classification: Deford—7w; Seney—5s
Michigan soil management group: Deford—L-4c; Seney—5a
Important farmland classification: Not prime farmland
Hydric soil status: Deford—hydric; Seney—not hydric
Habitat type: Deford—FMC; Seney—TMC-V

519B—Trenary silt loam, 2 to 6 percent slopes

Setting

Landform: Ground moraines, end moraines

Map Unit Composition

Major components:
Trenary and similar soils—80 to 95 percent
Minor components:
Cookson and similar soils—5 to 15 percent
Menominee and similar soils—1 to 10 percent

Typical Profile

Trenary
A—0 to 2 inches; silt loam
E—2 to 6 inches; silt loam
Bhs—6 to 12 inches; silt loam
Bs—12 to 17 inches; silt loam
E´—17 to 26 inches; sandy loam
Bt—26 to 37 inches; sandy clay loam
C—37 to 80 inches; sandy loam

Soil Properties and Qualities

Parent material: Till
Slope: 1 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 8.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Cropland, pasture

Cropland
Major management concerns: Water erosion, soil compaction

Pasture
Major management concerns: Soil compaction, water erosion

Forestland
Major management concerns: None

Building site development
Major management concerns: None

Septic tank absorption fields
Major management concerns: None

Interpretive Groups

Land capability classification: 2e
Michigan soil management group: 3a
Important farmland classification: Prime farmland
Hydric soil status: Not hydric
Habitat type: AOC

520B—Rubicon-Sultz complex, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Rubicon and similar soils—45 to 65 percent
Sultz and similar soils—30 to 45 percent
Minor components:
Croswell and similar soils—0 to 5 percent
Kinross and similar soils—0 to 5 percent

Typical Profile

Rubicon
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Sultz
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; fine sand
E—2 to 6 inches; fine sand
Bs—6 to 18 inches; fine sand
C1—18 to 51 inches; fine sand
2C2—51 to 80 inches; loamy very fine sand

Soil Properties and Qualities

Rubicon
Parent material: Outwash
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Sultz
Parent material: Eolian sands over sandy glaciofluvial deposits
Slope: 0 to 6 percent

Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Rubicon—poor filtering capacity; Sultz—poor filtering capacity, restricted permeability

Interpretive Groups

Land capability classification: Rubicon—6s; Sultz—3s
Michigan soil management group: Rubicon—5.3a; Sultz—5a
Important farmland classification: Not prime farmland
Hydric soil status: Rubicon—not hydric; Sultz—not hydric
Habitat type: Rubicon—AQV; Sultz—AQV

520D—Rubicon-Sultz complex, 6 to 15 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Rubicon and similar soils—40 to 65 percent
Sultz and similar soils—30 to 45 percent
Minor components:
Croswell and similar soils—0 to 5 percent
Kinross and similar soils—0 to 5 percent

Typical Profile

Rubicon
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Sultz
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; fine sand

E—2 to 6 inches; fine sand
Bs—6 to 18 inches; fine sand
C1—18 to 51 inches; fine sand
2C2—51 to 80 inches; loamy very fine sand

Soil Properties and Qualities

Rubicon
Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Sultz
Parent material: Eolian sands over sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Rubicon—slope, poor filtering capacity; Sultz—slope, poor filtering capacity, restricted permeability

Interpretive Groups

Land capability classification: Rubicon—6s; Sultz—6s
Michigan soil management group: Rubicon—5.3a; Sultz—4/2a
Important farmland classification: Not prime farmland
Hydric soil status: Rubicon—not hydric; Sultz—not hydric
Habitat type: Rubicon—AQV; Sultz—AQV

525B—Neconish-Kinross-Wainola complex, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Neconish and similar soils—25 to 45 percent
Kinross and similar soils—25 to 35 percent
Wainola and similar soils—20 to 30 percent
Minor components:
Dawson and similar soils—1 to 10 percent
Rousseau and similar soils—0 to 10 percent

Typical Profile

Neconish
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 8 inches; fine sand
Bs—8 to 21 inches; fine sand
BC—21 to 32 inches; fine sand
C—32 to 80 inches; fine sand

Kinross
Oa—0 to 3 inches; muck
Eg—3 to 14 inches; fine sand
Bhs—14 to 22 inches; fine sand
Bs—22 to 35 inches; fine sand
C—35 to 80 inches; fine sand

Wainola
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 12 inches; fine sand
Bs1—12 to 18 inches; fine sand
Bs2—18 to 27 inches; fine sand
BC—27 to 41 inches; fine sand
C—41 to 80 inches; very fine sand

Soil Properties and Qualities

Neconish
Parent material: Outwash, sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Kinross
Parent material: Outwash
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Wainola
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Neconish—seedling mortality; Kinross—seedling mortality, windthrow hazard, severe wetness; Wainola—seedling mortality, windthrow hazard

Building site development
Major management concerns: Neconish—cutbanks caving, seasonal wetness; Kinross—cutbanks caving, ponding, severe wetness; Wainola—cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Neconish—poor filtering capacity, seasonal wetness; Kinross—poor filtering capacity, ponding, severe wetness; Wainola—poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: Neconish—4s; Kinross—6w; Wainola—4w
Michigan soil management group: Neconish—5.3a; Kinross—5c-a; Wainola—5b
Important farmland classification: Not prime farmland
Hydric soil status: Neconish—not hydric; Kinross—hydric; Wainola—not hydric
Habitat type: Neconish—AQV; Kinross—TTS; Wainola—TMC

526B—Graveraet-Angelica complex, 0 to 4 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Graveraet and similar soils—35 to 55 percent
Angelica and similar soils—25 to 40 percent
Minor components:
Charlevoix and similar soils—5 to 15 percent
Hendrie and similar soils—5 to 15 percent

Typical Profile

Graveraet
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 7 inches; fine sandy loam
Bhs—7 to 10 inches; fine sandy loam
Bs—10 to 17 inches; fine sandy loam
E/Bx—17 to 33 inches; loamy sand, loam
B/E—33 to 48 inches; sandy clay loam, loamy sand
Bt—48 to 68 inches; sandy clay loam
C—68 to 80 inches; sandy loam

Angelica
Oa—0 to 2 inches; muck
A—2 to 6 inches; loam
Bg—6 to 10 inches; sandy loam
Bw—10 to 17 inches; sandy loam
C—17 to 80 inches; loam

Soil Properties and Qualities

Graveraet
Parent material: Till
Slope: 1 to 4 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: 14 to 24 inches to a fragipan
Drainage class: Moderately well drained
Available water capacity: About 6.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Very slow
Flooding: None
Depth to seasonal high water table: 1 to 2 feet (April)
Ponding: None

Angelica
Parent material: Till
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained
Available water capacity: About 9.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: At the surface (March, April, May, October)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Graveraet—soil rutting, windthrow hazard, seasonal wetness; Angelica—clayey textures, seedling mortality, soil rutting, windthrow hazard, severe wetness

Building site development
Major management concerns: Graveraet—cutbanks caving, seasonal wetness; Angelica—ponding, severe wetness

Septic tank absorption fields
Major management concerns: Graveraet—restricted permeability, depth to a fragipan, severe wetness; Angelica—restricted permeability, ponding, severe wetness

Interpretive Groups

Land capability classification: Graveraet—3s; Angelica—5w
Michigan soil management group: Graveraet—3a-f; Angelica—2.5c
Important farmland classification: Not prime farmland
Hydric soil status: Graveraet—not hydric; Angelica—hydric
Habitat type: Graveraet—AVO/AVO-A; Angelica—FE

527B—Islandlake-McMillan complex, 0 to 6 percent slopes

Setting

Landform: Disintegration moraines, outwash plains

Map Unit Composition

Major components:
Islandlake and similar soils—30 to 60 percent
McMillan and similar soils—25 to 50 percent

Typical Profile

Islandlake
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; sand
E—2 to 8 inches; sand
Bhs—8 to 9 inches; sand
Bs—9 to 41 inches; sand
E and Bt—41 to 80 inches; sand, loamy sand

McMillan
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 6 inches; fine sandy loam
Bhs—6 to 9 inches; very fine sandy loam
Bs1—9 to 16 inches; very fine sandy loam
Bs2—16 to 22 inches; loamy fine sand
Bw—22 to 32 inches; sand
E and Bt—32 to 80 inches; stratified sand to loamy sand

Soil Properties and Qualities

Islandlake
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

McMillan
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Very low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Islandlake—seedling mortality; McMillan—none

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: Islandlake—4s; McMillan—3s
Michigan soil management group: Islandlake—5a; McMillan—4a

Important farmland classification: Not prime farmland
Hydric soil status: Islandlake—not hydric; McMillan—not hydric
Habitat type: Islandlake—ATD-D; McMillan—ATD

527D—Islandlake-McMillan complex, 6 to 15 percent slopes

Setting

Landform: Disintegration moraines, outwash plains

Map Unit Composition

Major components:
Islandlake and similar soils—30 to 60 percent
McMillan and similar soils—25 to 45 percent
Minor components:
Steuben and similar soils—0 to 10 percent
Kinross and similar soils—0 to 5 percent
Dawson and similar soils—0 to 5 percent

Typical Profile

Islandlake
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; sand
E—2 to 8 inches; sand
Bhs—8 to 9 inches; sand
Bs—9 to 41 inches; sand
E and Bt—41 to 80 inches; sand, loamy sand

McMillan
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 6 inches; fine sandy loam
Bhs—6 to 9 inches; very fine sandy loam
Bs1—9 to 16 inches; very fine sandy loam
Bs2—16 to 22 inches; loamy fine sand
Bw—22 to 32 inches; sand
E and Bt—32 to 80 inches; stratified sand to loamy sand

Soil Properties and Qualities

Islandlake
Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

McMillan
Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Islandlake—seedling mortality; McMillan—none

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: Islandlake—6s; McMillan—4e
Michigan soil management group: Islandlake—5a; McMillan—4a
Important farmland classification: Not prime farmland
Hydric soil status: Islandlake—not hydric; McMillan—not hydric
Habitat type: Islandlake—ATD-D; McMillan—ATD

527E—Islandlake-McMillan complex, 15 to 35 percent slopes

Setting

Landform: Outwash plains, disintegration moraines

Map Unit Composition

Major components:
Islandlake and similar soils—30 to 60 percent
McMillan and similar soils—25 to 45 percent
Minor components:
Steuben and similar soils—0 to 10 percent
Kinross and similar soils—0 to 5 percent
Dawson and similar soils—0 to 5 percent

Typical Profile

Islandlake
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; sand
E—2 to 8 inches; sand
Bhs—8 to 9 inches; sand

Bs—9 to 41 inches; sand
E and Bt—41 to 80 inches; sand, loamy sand

McMillan
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 6 inches; fine sandy loam
Bhs—6 to 9 inches; very fine sandy loam
Bs1—9 to 16 inches; very fine sandy loam
Bs2—16 to 22 inches; loamy fine sand
Bw—22 to 32 inches; sand
E and Bt—32 to 80 inches; stratified sand to loamy sand

Soil Properties and Qualities

Islandlake
Parent material: Sandy glaciofluvial deposits
Slope: 15 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

McMillan
Parent material: Sandy glaciofluvial deposits
Slope: 15 to 35 percent
Surface runoff class: High
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Islandlake—erosion, seedling mortality, slope; McMillan—erosion, sandy textures, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: Islandlake—6e; McMillan—6e

Michigan soil management group: Islandlake—5a; McMillan—4a
Important farmland classification: Not prime farmland
Hydric soil status: Islandlake—not hydric; McMillan—not hydric
Habitat type: Islandlake—ATD-D; McMillan—ATD

531B—Greylock fine sandy loam, 1 to 6 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Greylock and similar soils—85 to 100 percent
Minor components:
Blue Lake and similar soils—0 to 10 percent
Escanaba and similar soils—0 to 10 percent
Cookson and similar soils—0 to 5 percent
Charlevoix and similar soils—0 to 5 percent

Typical Profile

Greylock
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 6 inches; fine sandy loam
E—6 to 7 inches; sandy loam
Bhs—7 to 9 inches; sandy loam
Bs—9 to 19 inches; sandy loam
E/B—19 to 26 inches; sandy loam
B/E—26 to 34 inches; sandy loam
C—34 to 80 inches; sandy loam

Soil Properties and Qualities

Parent material: Loamy lodgment till
Slope: 1 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 7.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: None

Building site development
Major management concerns: None

Septic tank absorption fields
Major management concerns: None

Interpretive Groups

Land capability classification: 2e
Michigan soil management group: 3a
Important farmland classification: Prime farmland
Hydric soil status: Not hydric
Habitat type: AVO

531D—Greylock fine sandy loam, 6 to 15 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Greylock and similar soils—85 to 100 percent
Minor components:
Blue Lake and similar soils—0 to 10 percent
Escanaba and similar soils—0 to 10 percent
Dillingham and similar soils—0 to 5 percent
Charlevoix and similar soils—0 to 5 percent

Typical Profile

Greylock
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 6 inches; fine sandy loam
E—6 to 7 inches; sandy loam
Bhs—7 to 9 inches; sandy loam
Bs—9 to 19 inches; sandy loam
E/B—19 to 26 inches; sandy loam
B/E—26 to 34 inches; sandy loam
C—34 to 80 inches; sandy loam

Soil Properties and Qualities

Parent material: Loamy lodgment till
Slope: 6 to 15 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 7.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: None

Building site development
Major management concerns: Slope

Septic tank absorption fields
Major management concerns: Slope

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: 3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AVO

532—Angelica muck

Setting

Landform: Depressions and drainageways on ground moraines

Map Unit Composition

Major components:
Angelica and similar soils—80 to 95 percent
Minor components:
Hendrie and similar soils—5 to 15 percent
Caffey and similar soils—2 to 10 percent

Typical Profile

Angelica
Oa—0 to 2 inches; muck
A—2 to 6 inches; loam
Bg—6 to 10 inches; sandy loam
Bw—10 to 17 inches; sandy loam
C—17 to 80 inches; loam

Soil Properties and Qualities

Parent material: Till
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 9.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: At the surface (March, April, May, October)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Clayey textures, seedling mortality, soil rutting, windthrow hazard, severe wetness

Building site development
Major management concerns: Ponding, severe wetness

Septic tank absorption fields
Major management concerns: Restricted permeability, ponding, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: 2.5c
Important farmland classification: Not prime farmland
Hydric soil status: Hydric
Habitat type: TTP

534—Pickford silty clay loam

Setting

Landform: Depressions on lake plains

Map Unit Composition

Major components:
Pickford and similar soils—100 percent

Typical Profile

A—0 to 6 inches; silty clay loam
Eg—6 to 9 inches; silty clay loam
Bg—9 to 13 inches; silty clay loam
BCg—13 to 24 inches; clay
C—24 to 80 inches; clay

Soil Properties and Qualities

Parent material: Glaciolacustrine deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 7.1 inches to a depth of 60 inches
Shrink-swell potential: High
Permeability: Very slow
Flooding: None
Depth to seasonal high water table: At the surface (March, April, May, October, November)
Months in which ponding does not occur: January, February, June, July, August, September, November, December
Deepest ponding: 0.2 foot (March, April, May, October)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Clayey textures, seedling mortality, soil rutting, windthrow hazard, severe wetness

Building site development
Major management concerns: Ponding, severe wetness

Septic tank absorption fields
Major management concerns: Restricted permeability, ponding, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: 1c
Important farmland classification: Not prime farmland
Hydric soil status: Hydric
Habitat type: TAM

535B—Trenary fine sandy loam, 2 to 6 percent slopes

Setting

Landform: Ground moraines, end moraines

Map Unit Composition

Major components:
Trenary and similar soils—85 to 100 percent
Minor components:
Growton and similar soils—0 to 10 percent
Menominee, sandy substratum, and similar soils—0 to 10 percent

Typical Profile

Trenary
A—0 to 2 inches; fine sandy loam
E—2 to 6 inches; fine sandy loam
Bhs—6 to 12 inches; fine sandy loam
Bs—12 to 17 inches; fine sandy loam
E´—17 to 26 inches; sandy loam
Bt—26 to 37 inches; sandy clay loam
C—37 to 80 inches; sandy loam

Soil Properties and Qualities

Parent material: Till
Slope: 2 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 8.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Cropland, pasture

Cropland
Major management concerns: Water erosion, soil blowing

Pasture
Major management concerns: Water erosion

Forestland
Major management concerns: None

Building site development
Major management concerns: None

Septic tank absorption fields
Major management concerns: None

Interpretive Groups

Land capability classification: 2e
Michigan soil management group: 3a
Important farmland classification: Prime farmland
Hydric soil status: Not hydric
Habitat type: AVO

535D—Trenary fine sandy loam, 6 to 15 percent slopes

Setting

Landform: End moraines, ground moraines

Map Unit Composition

Major components:
Trenary and similar soils—85 to 100 percent
Minor components:
Menominee, sandy substratum, and similar soils—0 to 10 percent
Ensley and similar soils—0 to 10 percent

Typical Profile

Trenary
A—0 to 2 inches; fine sandy loam
E—2 to 6 inches; fine sandy loam
Bhs—6 to 12 inches; fine sandy loam
Bs—12 to 17 inches; fine sandy loam
E´—17 to 26 inches; sandy loam
Bt—26 to 37 inches; sandy clay loam
C—37 to 80 inches; sandy loam

Soil Properties and Qualities

Parent material: Till
Slope: 6 to 15 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 8.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Cropland, pasture

Cropland
Major management concerns: Water erosion, soil blowing

Pasture
Major management concerns: Water erosion

Forestland
Major management concerns: None

Building site development
Major management concerns: Slope

Septic tank absorption fields
Major management concerns: Slope

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: 3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AVO

536B—Menominee sand, sandy substratum, 2 to 6 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Menominee, sandy substratum, and similar soils—85 to 100 percent
Minor components:
Kalkaska and similar soils—0 to 10 percent
Trenary and similar soils—0 to 10 percent

Typical Profile

Menominee
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 8 inches; sand
Bhs—8 to 11 inches; sand
Bs—11 to 34 inches; sand
2B/E—34 to 46 inches; clay loam, fine sandy loam
2C1—46 to 62 inches; loam
3C2—62 to 80 inches; stratified sand to loamy sand

Soil Properties and Qualities

Parent material: Outwash over till
Slope: 2 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches

Drainage class: Well drained
Available water capacity: About 6.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: 4/2a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AVO

537B—McMillan fine sandy loam, 0 to 6 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
McMillan and similar soils—80 to 100 percent
Minor components:
Kalkaska and similar soils—0 to 15 percent
Trenary and similar soils—0 to 10 percent

Typical Profile

McMillan
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 6 inches; fine sandy loam
Bhs—6 to 9 inches; very fine sandy loam
Bs1—9 to 16 inches; very fine sandy loam
Bs2—16 to 22 inches; loamy fine sand
Bw—22 to 32 inches; sand
E and Bt—32 to 80 inches; stratified sand to loamy sand

Soil Properties and Qualities

Parent material: Glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Cropland

Cropland
Major management concerns: Water erosion, soil blowing, droughtiness, nutrient loss

Forestland
Major management concerns: None

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: 4a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AVO/ATD

537D—McMillan fine sandy loam, 6 to 15 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
McMillan and similar soils—80 to 100 percent
Minor components:
Kalkaska and similar soils—0 to 15 percent
Trenary and similar soils—0 to 10 percent

Typical Profile

McMillan
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 6 inches; fine sandy loam
Bhs—6 to 9 inches; very fine sandy loam
Bs1—9 to 16 inches; very fine sandy loam
Bs2—16 to 22 inches; loamy fine sand
Bw—22 to 32 inches; sand
E and Bt—32 to 80 inches; stratified sand to loamy sand

Soil Properties and Qualities

Parent material: Glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: None

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: 4a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AVO/ATD

538B—Menominee, sandy substratum-McMillan complex, 0 to 6 percent slopes

Setting

Landform: Ground moraines

Map Unit Composition

Major components:
Menominee, sandy substratum, and similar soils—40 to 60 percent
McMillan and similar soils—25 to 50 percent
Minor components:
Islandlake and similar soils—5 to 15 percent
Trenary and similar soils—5 to 15 percent

Typical Profile

Menominee
Oe—0 to 1 inch; moderately decomposed plant material
E—1 to 8 inches; sand
Bhs—8 to 11 inches; sand
Bs—11 to 34 inches; sand
2B/E—34 to 46 inches; clay loam, fine sandy loam

2C1—46 to 62 inches; loam
3C2—62 to 80 inches; stratified sand to loamy sand

McMillan
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 6 inches; fine sandy loam
Bhs—6 to 9 inches; very fine sandy loam
Bs1—9 to 16 inches; very fine sandy loam
Bs2—16 to 22 inches; loamy fine sand
Bw—22 to 32 inches; sand
E and Bt—32 to 80 inches; stratified sand to loamy sand

Soil Properties and Qualities

Menominee
Parent material: Outwash over till
Slope: 2 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 6.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

McMillan
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Cropland, pasture, building site development

Cropland
Major management concerns: Menominee—water erosion, soil blowing, nutrient loss; McMillan—water erosion, soil blowing, droughtiness, nutrient loss

Pasture
Major management concerns: Menominee—water erosion; McMillan—water erosion, droughtiness

Forestland
Major management concerns: Menominee—seedling mortality; McMillan—none

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: Menominee—3s; McMillan—3s
Michigan soil management group: Menominee—4/2a; McMillan—4a
Important farmland classification: Not prime farmland
Hydric soil status: Menominee—not hydric; McMillan—not hydric
Habitat type: Menominee—AVO; McMillan—ATD

540D—Deford-Rubicon-Au Gres complex, 0 to 15 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Deford and similar soils—25 to 45 percent
Rubicon and similar soils—15 to 35 percent
Au Gres and similar soils—5 to 30 percent
Minor components:
Croswell and similar soils—5 to 20 percent
Tawas and similar soils—2 to 10 percent

Typical Profile

Deford
Oa—0 to 4 inches; muck
C—4 to 80 inches; fine sand

Rubicon
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Au Gres
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 7 inches; sand
Bs—7 to 17 inches; sand
BC—17 to 28 inches; sand
C—28 to 80 inches; sand

Soil Properties and Qualities

Deford
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 5.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.5 foot (March, April, May, October, November)

Rubicon
Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Au Gres
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Deford—seedling mortality, windthrow hazard, severe wetness; Rubicon—sandy textures, seedling mortality; Au Gres—seedling mortality, windthrow hazard, seasonal wetness

Building site development
Major management concerns: Deford—cutbanks caving, ponding, severe wetness; Rubicon—cutbanks caving, slope; Au Gres—cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Deford—poor filtering capacity, ponding, severe wetness; Rubicon—slope, poor filtering capacity; Au Gres—poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: Deford—5w; Rubicon—7s; Au Gres—4w
Michigan soil management group: Deford—4c; Rubicon—5.3a; Au Gres—5b
Important farmland classification: Not prime farmland
Hydric soil status: Deford—hydric; Rubicon—not hydric; Au Gres—not hydric
Habitat type: Deford—FMC; Rubicon—AQV; Au Gres—TMC-V

541D—Kinross-Au Gres-Rubicon complex, 0 to 15 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kinross and similar soils—35 to 50 percent
Au Gres and similar soils—15 to 35 percent
Rubicon and similar soils—10 to 20 percent
Minor components:
Croswell and similar soils—2 to 15 percent
Markey and similar soils—2 to 10 percent

Typical Profile

Kinross
Oa—0 to 3 inches; muck
Eg—3 to 14 inches; sand
Bhs—14 to 22 inches; sand
Bs—22 to 35 inches; sand
C—35 to 80 inches; sand

Au Gres
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 7 inches; sand
Bs—7 to 17 inches; sand
BC—17 to 28 inches; sand
C—28 to 80 inches; sand

Rubicon
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Kinross
Parent material: Outwash
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 4.7 inches to a depth of 60 inches

Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Au Gres
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Rubicon
Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Kinross—seedling mortality, windthrow hazard, severe wetness; Au Gres—seedling mortality, windthrow hazard, seasonal wetness; Rubicon—sandy textures, seedling mortality

Building site development
Major management concerns: Kinross—cutbanks caving, ponding, severe wetness; Au Gres—cutbanks caving, seasonal wetness; Rubicon—cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Kinross—poor filtering capacity, ponding, severe wetness; Au Gres—poor filtering capacity, severe wetness; Rubicon—slope, poor filtering capacity

Interpretive Groups

Land capability classification: Kinross—6w; Au Gres—4w; Rubicon—7s
Michigan soil management group: Kinross—5c-a; Au Gres—5b; Rubicon—5.3a

Important farmland classification: Not prime farmland
Hydric soil status: Kinross—hydric; Au Gres—not hydric; Rubicon—not hydric
Habitat type: Kinross—TTS; Au Gres—TMC-V; Rubicon—AQV

543B—Auger very fine sandy loam, sandy substratum, 0 to 6 percent slopes

Setting

Landform: Lake plains

Map Unit Composition

Major components:
Auger, sandy substratum, and similar soils—80 to 90 percent
Minor components:
Cublake and similar soils—5 to 12 percent
Ingalls and similar soils—0 to 10 percent
Annanias and similar soils—0 to 10 percent

Typical Profile

Auger
Ap—0 to 7 inches; very fine sandy loam
Bhs—7 to 10 inches; very fine sandy loam
Bs—10 to 17 inches; very fine sandy loam
C1—17 to 60 inches; stratified silt loam to very fine sandy loam
2C2—60 to 80 inches; stratified loamy fine sand to fine sand

Soil Properties and Qualities

Parent material: Glaciolacustrine deposits
Slope: 0 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 12.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 2.5 to 6.7 feet (April)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Soil rutting

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: 3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: TMC-D

546B—Kalkaska sand, 0 to 6 percent slopes, deep water table

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kalkaska, deep water table, and similar soils—90 to 100 percent
Minor components:
Kinross and similar soils—0 to 5 percent
Finch and similar soils—0 to 5 percent

Typical Profile

Kalkaska
A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 0 to 6 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 4.3 to 15.0 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

546D—Kalkaska sand, 6 to 15 percent slopes, deep water table

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kalkaska, deep water table, and similar soils—80 to 100 percent
Minor components:
Kinross and similar soils—0 to 10 percent
Finch and similar soils—0 to 10 percent

Typical Profile

Kalkaska
A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 4.3 to 15.0 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

547B—Rubicon sand, 0 to 6 percent slopes, very deep water table

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Rubicon, very deep water table, and similar soils—90 to 100 percent
Minor components:
Au Gres and similar soils—0 to 5 percent
Kinross and similar soils—0 to 5 percent

Typical Profile

Rubicon
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 9.2 to 15.0 feet (January, February, June, September, December)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: QAE

547D—Rubicon sand, 6 to 15 percent slopes, very deep water table

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Rubicon, very deep water table, and similar soils—90 to 100 percent
Minor components:
Au Gres and similar soils—0 to 5 percent
Kinross and similar soils—0 to 5 percent

Typical Profile

Rubicon
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 9.2 to 15.0 feet (January, February, June, September, December)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: QAE

548B—McMillan-Trenary fine sandy loams, 1 to 6 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
McMillan and similar soils—45 to 65 percent
Trenary and similar soils—25 to 45 percent
Minor components:
Growton and similar soils—0 to 10 percent
Kalkaska and similar soils—0 to 10 percent

Typical Profile

McMillan
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; fine sandy loam
E—4 to 6 inches; fine sandy loam
Bhs—6 to 9 inches; very fine sandy loam
Bs1—9 to 16 inches; very fine sandy loam
Bs2—16 to 22 inches; loamy fine sand
Bw—22 to 32 inches; sand
E and Bt—32 to 80 inches; stratified sand to loamy sand

Trenary
A—0 to 2 inches; fine sandy loam
E—2 to 6 inches; fine sandy loam
Bhs—6 to 12 inches; fine sandy loam
Bs—12 to 17 inches; fine sandy loam
E´—17 to 26 inches; sandy loam
Bt—26 to 37 inches; sandy clay loam
C—37 to 80 inches; sandy loam

Soil Properties and Qualities

McMillan
Parent material: Glaciofluvial deposits
Slope: 1 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.0 inches to a depth of 60 inches

Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Trenary
Parent material: Till
Slope: 2 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 8.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland
Other uses: Cropland

Cropland
Major management concerns: McMillan—water erosion, soil blowing, droughtiness, nutrient loss; Trenary—water erosion, soil blowing

Forestland
Major management concerns: None

Building site development
Major management concerns: McMillan—cutbanks caving; Trenary—none

Septic tank absorption fields
Major management concerns: McMillan—poor filtering capacity; Trenary—none

Interpretive Groups

Land capability classification: McMillan—3s; Trenary—2e
Michigan soil management group: McMillan—4a; Trenary—3a
Important farmland classification: Not prime farmland
Hydric soil status: McMillan—not hydric; Trenary—not hydric
Habitat type: McMillan—AVO/ATD; Trenary—AVO

549B—Islandlake sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains, disintegration moraines

Map Unit Composition

Major components:
Islandlake and similar soils—90 to 100 percent
Minor components:
Halfaday and similar soils—0 to 5 percent
Kinross and similar soils—0 to 5 percent

Typical Profile

Islandlake
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; sand
E—2 to 8 inches; sand
Bhs—8 to 9 inches; sand
Bs—9 to 41 inches; sand
E and Bt—41 to 80 inches; sand, loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
*Potential for frost action:*Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

549D—Islandlake sand, 6 to 15 percent slopes

Setting

Landform: Outwash plains, disintegration moraines

Map Unit Composition

Major components:
Islandlake and similar soils—90 to 100 percent
Minor components:
Halfaday and similar soils—0 to 5 percent
Kinross and similar soils—0 to 5 percent

Typical Profile

Islandlake
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; sand
E—2 to 8 inches; sand
Bhs—8 to 9 inches; sand
Bs—9 to 41 inches; sand
E and Bt—41 to 80 inches; sand, loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

549E—Islandlake sand, 15 to 35 percent slopes

Setting

Landform: Disintegration moraines, outwash plains

Map Unit Composition

Major components:
Islandlake and similar soils—90 to 100 percent
Minor components:
Halfaday and similar soils—0 to 5 percent
Kinross and similar soils—0 to 5 percent

Typical Profile

Islandlake
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; sand
E—2 to 8 inches; sand
Bhs—8 to 9 inches; sand
Bs—9 to 41 inches; sand
E and Bt—41 to 80 inches; sand, loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 15 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Erosion, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6e
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD

551B—Kalkaska sand, 0 to 6 percent slopes, very deep water table

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kalkaska, very deep water table, and similar soils—90 to 100 percent
Minor components:
Kinross and similar soils—0 to 5 percent
Finch and similar soils—0 to 5 percent

Typical Profile

Kalkaska
A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 0 to 6 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 9.2 to 15.0 feet (January, February, June, September, December)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

551D—Kalkaska sand, 6 to 15 percent slopes, very deep water table

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kalkaska, very deep water table, and similar soils—90 to 100 percent
Minor components:
Kinross and similar soils—0 to 5 percent
Finch and similar soils—0 to 5 percent

Typical Profile

Kalkaska
A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 9.2 to 15.0 feet (January, February, June, September, December)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

553—Carbondale-Loxley complex

Setting

Landform: Depressions on outwash plains

Map Unit Composition

Major components:
Carbondale and similar soils—45 to 70 percent
Loxley and similar soils—30 to 50 percent

Typical Profile

Carbondale
Oa—0 to 38 inches; muck
Oe—38 to 80 inches; mucky peat

Loxley
Oi—0 to 8 inches; peat
Oa—8 to 80 inches; muck

Soil Properties and Qualities

Carbondale
Parent material: Herbaceous material
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 26.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, October, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, June, October, November)

Loxley
Parent material: Herbaceous material
Slope: 0 to 1 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 25.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: July, August, September
Deepest ponding: 0.5 foot (April, May, November)

Use and Management

Dominant land use: Wildlife habitat

Forestland
Major management concerns: Seedling mortality, windthrow hazard, excess humus, low strength

Building site development
Major management concerns: Ponding, severe wetness, low strength, subsidence

Septic tank absorption fields
Major management concerns: Ponding, low strength, subsidence, severe wetness

Interpretive Groups

Land capability classification: Carbondale—6w; Loxley—7w
Michigan soil management group: Carbondale—Mc; Loxley—Mc-a
Important farmland classification: Not prime farmland
Hydric soil status: Carbondale—hydric; Loxley—hydric
Habitat type: Carbondale—TTM/TTS; Loxley—PCS

554B—Duck-Halfaday complex, 0 to 6 percent slopes

Setting

Landform: Stream terraces

Map Unit Composition

Major components:
Duck and similar soils—55 to 75 percent
Halfaday and similar soils—15 to 30 percent
Minor components:
Kalkaska and similar soils—5 to 15 percent

Typical Profile

Duck
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 6 inches; fine sandy loam
2Bw—6 to 15 inches; sand
2C—15 to 80 inches; sand

Halfaday
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 9 inches; sand
Bhs—9 to 10 inches; sand
Bs—10 to 35 inches; sand
C—35 to 80 inches; sand

Soil Properties and Qualities

Duck
Parent material: Sandy outwash
Slope: 0 to 4 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Halfaday
Parent material: Sandy outwash
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained
Available water capacity: About 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Duck—seedling mortality, soil rutting; Halfaday—sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: Duck—4s; Halfaday—4s
Michigan soil management group: Duck—5a; Halfaday—5a
Important farmland classification: Not prime farmland
Hydric soil status: Duck—not hydric; Halfaday—not hydric
Habitat type: Duck—TMC-D; Halfaday—ATD

555D—Hiawatha-Deer Park-Rubicon complex, 0 to 15 percent slopes

Setting

Landform: Stream terraces, beach ridges

Map Unit Composition

Major components:
Hiawatha and similar soils—25 to 50 percent
Deer Park and similar soils—20 to 40 percent
Rubicon and similar soils—10 to 25 percent
Minor components:
Duck and similar soils—3 to 12 percent
Seney and similar soils—0 to 10 percent

Typical Profile

Hiawatha
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 6 inches; fine sandy loam
2C—6 to 80 inches; sand

Deer Park
Oa—0 to 2 inches; highly decomposed plant material
A—2 to 3 inches; sand
E—3 to 10 inches; sand
Bs—10 to 21 inches; sand
C—21 to 80 inches; sand

Rubicon
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Hiawatha
Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 3.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 5.0 to 6.7 feet (April, May)
Ponding: None

Deer Park
Parent material: Eolian deposits
Slope: 2 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Rubicon
Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Hiawatha—seedling mortality; Deer Park and Rubicon—sandy textures, seedling mortality

Building site development
Major management concerns: Hiawatha and Deer Park—cutbanks caving; Rubicon—cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Hiawatha—poor filtering capacity, seasonal wetness; Deer Park—poor filtering capacity; Rubicon—slope, poor filtering capacity

Interpretive Groups

Land capability classification: Hiawatha—3s; Deer Park—7s; Rubicon—7s
Michigan soil management group: Hiawatha—5.7a; Deer Park—5.3a; Rubicon—5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Hiawatha—not hydric; Deer Park—not hydric; Rubicon—not hydric
Habitat type: Hiawatha—ATD; Deer Park—AQV; Rubicon—AQV

557B—Kalkaska sand, 0 to 6 percent slopes, very deep water table, burned

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kalkaska, very deep water table, burned, and similar soils—90 to 100 percent
Minor components:
Kinross and similar soils—0 to 5 percent
Finch and similar soils—0 to 5 percent

Typical Profile

Kalkaska
A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 9.2 to 15.0 feet (January, February, June, September, December)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

557D—Kalkaska sand, 6 to 15 percent slopes, very deep water table, burned

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kalkaska, very deep water table, burned, and similar soils—90 to 100 percent
Minor components:
Kinross and similar soils—0 to 5 percent
Finch and similar soils—0 to 5 percent

Typical Profile

Kalkaska
A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None

Depth to seasonal high water table: 9.2 to 15.0 feet (January, February, June, September, December)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

558B—Islandlake sand, 0 to 6 percent slopes, burned

Setting

Landform: Outwash plains, disintegration moraines

Map Unit Composition

Major components:
Islandlake, burned, and similar soils—90 to 100 percent
Minor components:
Halfaday and similar soils—0 to 5 percent
Kinross and similar soils—0 to 5 percent

Typical Profile

Islandlake
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; sand
E—2 to 8 inches; sand
Bhs—8 to 9 inches; sand
Bs—9 to 41 inches; sand
E and Bt—41 to 80 inches; sand, loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None

Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

558D—Islandlake sand, 6 to 15 percent slopes, burned

Setting

Landform: Disintegration moraines, outwash plains

Map Unit Composition

Major components:
Islandlake, burned, and similar soils—90 to 100 percent
Minor components:
McMillan and similar soils—0 to 5 percent
Halfaday and similar soils—0 to 5 percent

Typical Profile

Islandlake
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; sand
E—2 to 8 inches; sand
Bhs—8 to 9 inches; sand
Bs—9 to 41 inches; sand
E and Bt—41 to 80 inches; sand, loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid

Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

559B—Kalkaska sand, 0 to 6 percent slopes, deep water table, burned

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Kalkaska, deep water table, burned, and similar soils—90 to 100 percent
Minor components:
Kinross and similar soils—0 to 5 percent
Finch and similar soils—0 to 5 percent

Typical Profile

Kalkaska
A—0 to 2 inches; sand
E—2 to 6 inches; sand
Bhs—6 to 8 inches; sand
Bs—8 to 16 inches; sand
BC—16 to 26 inches; sand
C—26 to 80 inches; sand

Soil Properties and Qualities

Parent material: Outwash
Slope: 0 to 6 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low

Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 7.3 to 15.0 feet (January)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

560B—Islandlake sand, 0 to 6 percent slopes, very deep water table

Setting

Landform: Disintegration moraines, outwash plains

Map Unit Composition

Major components:
Islandlake, very deep water table, and similar soils—90 to 100 percent
Minor components:
Halfaday and similar soils—0 to 5 percent
Kinross and similar soils—0 to 5 percent

Typical Profile

Islandlake
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; sand
E—2 to 8 inches; sand
Bhs—8 to 9 inches; sand
Bs—9 to 41 inches; sand
E and Bt—41 to 80 inches; sand, loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 9.2 to 15.0 feet (January, February, June, September, December)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: ATD-D

561A—Croswell sand, 0 to 3 percent slopes

Setting

Landform: Outwash plains, stream terraces, lake plains

Map Unit Composition

Major components:
Croswell and similar soils—85 to 95 percent
Minor components:
Au Gres and similar soils—5 to 10 percent
Kinross and similar soils—2 to 8 percent

Typical Profile

Croswell
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 6 inches; sand
Bs—6 to 15 inches; sand
BC—15 to 22 inches; sand
C—22 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.6 inches to a depth of 60 inches

Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: AQV

562B—Croswell-Kinross complex, 0 to 6 percent slopes

Setting

Landform: Outwash plains, swales

Map Unit Composition

Major components:
Croswell and similar soils—40 to 60 percent
Kinross and similar soils—30 to 50 percent
Minor components:
Greenwood and similar soils—0 to 10 percent
Deer Park and similar soils—0 to 5 percent
Au Gres and similar soils—0 to 5 percent

Typical Profile

Croswell
Oe—0 to 2 inches; moderately decomposed plant material
E—2 to 6 inches; sand
Bs—6 to 15 inches; sand
BC—15 to 22 inches; sand
C—22 to 80 inches; sand

Kinross
Oa—0 to 3 inches; muck
Eg—3 to 14 inches; sand
Bhs—14 to 22 inches; sand
Bs—22 to 35 inches; sand
C—35 to 80 inches; sand

Soil Properties and Qualities

Croswell
Parent material: Sandy glaciofluvial deposits, beach sand
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Kinross
Parent material: Sandy outwash, beach sand
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Croswell—sandy textures, seedling mortality; Kinross—seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Croswell—cutbanks caving, seasonal wetness; Kinross—cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Croswell—poor filtering capacity, seasonal wetness; Kinross—poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: Croswell—4s; Kinross—6w
Michigan soil management group: Croswell—5a; Kinross—5c-a
Important farmland classification: Not prime farmland
Hydric soil status: Croswell—not hydric; Kinross—hydric
Habitat type: Croswell—AQV; Kinross—TTS

563B—Halfaday-Kinross complex, 0 to 4 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Halfaday and similar soils—40 to 60 percent
Kinross and similar soils—30 to 50 percent
Minor components:
Kalkaska and similar soils—0 to 10 percent
Garlic and similar soils—0 to 10 percent
Tawas and similar soils—0 to 10 percent

Typical Profile

Halfaday
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 9 inches; sand
Bhs—9 to 10 inches; sand
Bs—10 to 35 inches; sand
C—35 to 80 inches; sand

Kinross
Oa—0 to 3 inches; muck
Eg—3 to 14 inches; sand
Bhs—14 to 22 inches; sand
Bs—22 to 35 inches; sand
C—35 to 80 inches; sand

Soil Properties and Qualities

Halfaday
Parent material: Sandy outwash
Slope: 0 to 4 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Kinross
Parent material: Sandy outwash
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Deepest ponding: 0.2 foot (March, April, May, October, November)

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Halfaday—sandy textures, seedling mortality; Kinross—seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Halfaday—cutbanks caving, seasonal wetness; Kinross—cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Halfaday—poor filtering capacity, seasonal wetness; Kinross—poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: Halfaday—4s; Kinross—6w
Michigan soil management group: Halfaday—5a; Kinross—5c-a
Important farmland classification: Not prime farmland
Hydric soil status: Halfaday—not hydric; Kinross—hydric
Habitat type: Halfaday—ATD-D; Kinross—TTS

564A—Ingalls loamy sand, 0 to 3 percent slopes

Setting

Landform: Lake plains

Map Unit Composition

Major components:
Ingalls and similar soils—80 to 95 percent
Minor components:
Caffey and similar soils—5 to 15 percent
Au Gres and similar soils—0 to 10 percent

Typical Profile

Ingalls
Oi—0 to 1 inch; slightly decomposed plant material
Oa—1 to 3 inches; highly decomposed plant material
E—3 to 10 inches; loamy sand
Bs1—10 to 17 inches; loamy sand
Bs2—17 to 23 inches; sand
BC—23 to 43 inches; loamy fine sand
2C—43 to 80 inches; stratified loamy fine sand to fine sandy loam to silt loam

Soil Properties and Qualities

Parent material: Glaciofluvial deposits over glaciolacustrine deposits
Slope: 0 to 3 percent
Surface runoff class: Very low
Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 7.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 3w
Michigan soil management group: 4/2b
Important farmland classification: Prime farmland where drained
Hydric soil status: Not hydric
Habitat type: TMC-D

565B—Rubicon sand, 0 to 6 percent slopes, deep water table

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Rubicon, deep water table, and similar soils—90 to 100 percent
Minor components:
Au Gres and similar soils—0 to 5 percent
Kinross and similar soils—0 to 5 percent

Typical Profile

Rubicon
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible

Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 4.3 to 15.0 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: QAE

565D—Rubicon sand, 6 to 15 percent slopes, deep water table

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Rubicon, deep water table, and similar soils—90 to 100 percent
Minor components:
Au Gres and similar soils—0 to 5 percent
Kinross and similar soils—0 to 5 percent

Typical Profile

Rubicon
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 5 inches; sand
Bs—5 to 30 inches; sand
BC—30 to 38 inches; sand
C—38 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 15 percent
Surface runoff class: Very low

Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 4.3 to 15.0 feet (April, May)
Ponding: None

Use and Management

Dominant land use: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Important farmland classification: Not prime farmland
Hydric soil status: Not hydric
Habitat type: QAE

W—Water

General Definition

- This map unit consists of naturally occurring bodies of water, such as rivers, streams, lakes, reservoirs, and ponds.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of gravel, sand, reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate

gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and important farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information on management practices and solutions to the soil concerns can be obtained from the local office of the Natural Resources Conservation Service, the Soil Conservation District, Michigan State University Extension, or a certified planning professional.

If drainage is planned, care must be taken so that designated wetlands are not affected. Drainage of these areas could violate existing laws and regulations and may jeopardize receipt of USDA benefits. Information about the design of drainage systems and wetland compliance is available in local offices of the Natural Resources Conservation Service.

About 2 percent of the total land area in Schoolcraft County, or about 14,783 acres, is active or inactive farmland. Of the total cropland acreage, roughly 700 acres is used for row crops, 5,460 acres is used for pasture, 7,923 acres is used for hay, and 900 acres is used for small grain crops. The acreage used for field crops fluctuates from year to year because of anticipated market prices and weather conditions. Many soil-related management concerns are common to a large number of different soils. The following paragraphs describe the concerns in managing the cropland and pasture in Schoolcraft County. These concerns include water erosion, soil blowing, seasonal wetness, seasonal droughtiness, soil fertility, and tilth in the surface layer.

Water erosion and soil blowing are major management concerns on most of the cropland in the county. The loss of the surface layer through erosion is especially damaging on soils that have a loamy surface layer, such as Trenary and Cookson soils, and on soils that tend to be droughty, such as Kalkaska soils. Erosion on cropland results in the sedimentation and pollution of streams. Controlling erosion minimizes this pollution and improves the quality of water for municipal and recreational uses and for fish and other wildlife. Water erosion is a serious hazard on all loamy soils that have slopes of 2 percent or more. Preparing a good seedbed is difficult on some of the soils because the friable surface layer has been eroded away in places. Erosion-control practices provide a protective cover, reduce the runoff rate, and increase the rate of water infiltration. A cropping system that includes small grain and forage crops in the rotation for extended periods reduces the susceptibility to erosion and preserves the productive capacity of the soil. On livestock farms, where pasture and hay are needed, including forage crops of grasses and legumes in the cropping sequence helps to control erosion in the more sloping areas, provides nitrogen for subsequent crops, and improves tilth. Conservation tillage helps to control runoff and erosion by leaving a protective cover of crop residue on the surface.

Soil blowing is a hazard on loamy and sandy soils. An adequate plant cover, surface mulch, vegetative barriers, and tillage methods that leave crop residue on the surface help to control soil blowing. No-till farming is effective in controlling water erosion and soil blowing because it leaves crop residue on the surface, thereby increasing the

available water capacity in the surface layer of the soil. This practice is suited to most of the soils in the county. Using a no-till system can improve crop production in eroding areas. No-till helps to maintain the productive capacity of nearly all cropland. In areas where no-till crops are grown, different methods of planting and of controlling insects and weeds are needed. Timely planting, the selection of herbicides that are suited to the existing vegetation, an adequate supply of plant nutrients, and the selection of tillage systems based on soil characteristics are important management requirements.

Forage production and the extent to which the plant cover protects the surface of the soil are influenced by the number of livestock that the pasture supports, the length of time during which grazing is allowed, and the distribution of rainfall. Good pasture management includes using stocking rates that maintain the key forage species, applying a system of pasture rotation, deferring grazing, and strategically locating water supplies for livestock.

Seasonal wetness is a management concern in a few areas used for crops and pasture. Drainage of cropland improves the air-water relationship in the root zone. In areas where drainage is poor, spring planting, spraying, and harvesting are delayed and controlling weeds is difficult. Properly designed surface drainage systems can be used to remove excess water.

The design of surface drainage systems varies with the kind of soil. Finding adequate outlets for subsurface drainage systems is difficult in many areas. Good soil tilth and an adequate content of organic matter also improve drainage. In low-lying areas the growing season is shortened by frost in the late spring and early fall.

Seasonal droughtiness is a concern in areas of Kalkaska soils. Moisture can be conserved by using no-till farming and other kinds of conservation tillage, which leave all or part of the crop residue on the surface. Increasing the content of organic matter improves the available water capacity. Irrigation improves productivity.

Soil tilth is an important factor affecting the germination of seeds and the infiltration of water into the soil. Some of the soils used for crops have a loamy surface layer. Generally, the structure of such soils is weak, and intense rainfall causes the surface to crust. This crusting hinders the emergence of plant seedlings, reduces the rate of water infiltration, and increases the runoff rate. Regular additions of crop residue, manure, and other organic materials can improve tilth and can help to prevent surface crusting. Cover crops, green manure crops, proper management of crop residue, conservation tillage, and the application of livestock manure can help to maintain or improve tilth and the content of organic matter. These practices also allow the soils to be tilled earlier the following spring. Fall plowing is not suitable, however, on sloping soils or on soils that are subject to soil blowing. Good management is needed in intensively cropped areas and in areas that are cultivated year after year.

Allowing livestock to graze in areas of loamy soils during wet periods can result in soil compaction and poor tilth. The compaction caused by grazing during wet periods can retard the growth of pasture plants. Proper harvesting methods, such as those for hay or silage, increase plant growth and help to prevent compaction.

Soil fertility is naturally medium or high in loamy soils and low in most sandy soils on uplands. Many sandy soils naturally range from strongly acid to slightly acid. If lime has never been applied on these soils, applications of ground limestone are needed to raise the pH level sufficiently for good growth of alfalfa and other crops that grow well only on nearly neutral soils. Available phosphorus and potash levels are naturally low or medium in most of these soils. On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the expected level of yields.

The most common row crops suited to the soils and climate in Schoolcraft County include corn, wheat, potatoes, and oats. Alfalfa, either alone or in mixtures with clover and grasses, is the most common hay crop.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or the Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forestland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA/SCS, 1961).

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

The capability classification of the soils in this survey area is given in the section "Detailed Soil Map Units" and in the yields table.

At the end of each map unit description, the Michigan soil management group is listed. The soils in each map unit are assigned to a group according to the dominant texture, the drainage class, and the major management concerns (Mokma, 1982). More detailed information about these groups is available from the local office of the Michigan State University Extension.

Prime Farmland and Other Important Farmlands

Table 6 lists the map units in the survey area that are considered prime farmland. This list does not constitute a recommendation for a particular land use. The "Interpretive Groups" table also shows which soils are considered prime farmland or other important farmland.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation

or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

For some soils identified as prime farmland in table 6 and under the heading "Interpretive Groups," 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.

About 25,000 acres in Schoolcraft County, or about 4 percent of the survey area, meets the requirements for prime farmland. Scattered areas of this land are throughout the survey area, but most are in Inwood Township.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

In some areas that are not identified as having national or statewide importance, land is considered to be *farmland of local importance* for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

Hydric Soils

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all 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, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are 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, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time 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 are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map units have soils (occurring as major components of the map unit) that 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 (Hurt and Vasilas, 2006; National Research Council, 1995).

18—Kinross muck
30—Hendrie mucky peat
36—Carbondale, Lupton, and Tawas soils
37—Dawson, Greenwood, and Loxley soils
43—Ensley muck
63—Deford muck
65—Ausable, Deford, and Tawas mucks, frequently flooded
66—Markey mucky peat
69—Ruse mucky loam, rocky
72—Spot peat
84—Dawson-Kinross complex
90—Chippeny muck
91—Cathro and Lupton soils
123—Minocqua muck
222—Histosols and Aquents, ponded
532—Angelica muck
534—Pickford silty clay loam
553—Carbondale-Loxley complex

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform. The following map units, in general, do not meet the

definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

19A—Au Gres-Deford complex, 0 to 3 percent slopes
22E—Rousseau-Neconish-Deford complex, 0 to 25 percent slopes
26A—Spot-Finch complex, 0 to 3 percent slopes
27A—Hendrie-Annanias complex, 0 to 3 percent slopes
56B—Shuberts-Wurtsmith-Meehan complex, 0 to 6 percent slopes
61A—Ingalls-Caffey complex, 0 to 3 percent slopes
67B—Pelkie, occasionally flooded-Deford, frequently flooded, complex, 0 to 4 percent slopes
70F—Deer Park-Deford-Tawas complex, 0 to 60 percent slopes
76A—Shuberts-Manistique complex, 0 to 3 percent slopes
80F—Deer Park-Dawson-Wainola complex, 0 to 60 percent slopes
86B—Wurtsmith-Tawas-Deford complex, 0 to 6 percent slopes
93A—Ruse-Ensign complex, 0 to 3 percent slopes
120A—Charlevoix-Ensley complex, 0 to 3 percent sloeps
490B—Pelkie, occasionally flooded-Arnheim, frequently flooded, complex, 0 to 4 percent slopes
491B—Neconish-Deford, rarely flooded-Wainola complex, 0 to 6 percent slopes
493A—Deford-Meehan-Seney complex, 0 to 3 percent slopes
498B—Bursaw-Beavertail complex, 0 to 6 percent slopes
518A—Deford-Seney complex, frequently flooded, 0 to 3 percent slopes
525B—Neconish-Kinross-Wainola complex, 0 to 6 percent slopes
526B—Graveraet-Angelica complex, 0 to 4 percent slopes
540D—Deford-Rubicon-Au Gres complex, 0 to 15 percent slopes
541D—Kinross-Au Gres-Rubicon complex, 0 to 15 percent slopes
562B—Croswell-Kinross complex, 0 to 6 percent slopes
563B—Halfaday-Kinross complex, 0 to 4 percent slopes

Forestland

Forestland is the major land use in Schoolcraft County. It makes up about 525,000 acres, or about 67 percent of the county. About 106,000 acres of forestland is managed by the Hiawatha National Forest, about 15,000 acres is managed by the Seney National Wildlife Refuge, about 186,000 acres is managed by the State of Michigan, and the remaining 218,000 acres is managed by forest industry companies or is in private ownership (Schmidt and others, 1997).

Productivity was measured on several of the major soil series in the county. The site index was determined using at least five trees per site, and 18 site indices were determined for 14 different soil series (USDA/NRCS, National Forestry Manual).

Schoolcraft County originally was covered with virgin forests of pine and hardwoods. Most of the area has been cut, and a large portion of the land has been burned over. The dry, sandy upland soils in the county, which make up about 165,000 acres, support stands of jack pine, red pine, white pine, red maple, aspen, and white birch. Some of the very dry areas, which are dominated by jack pine, have historically had high frequencies of fire. The rest of these stands have been greatly impacted by the fires that followed the logging in the late 1800s. These fires favored species that seed and sprout rapidly, such as red maple, and eliminated white pine and red pine regeneration (Burger and Kotar, 2003). The more fertile sandy and loamy upland soils, which make up about 183,000 acres, support stands of sugar maple and American beech. This forest composition is least affected by fire, which occurs relatively infrequently and with low intensity. Windthrow appears to be the most common

disturbance favoring the establishment of white birch and aspen on these sites. Selective logging of the hemlock and white pine in these “northern hardwood” stands in later years favored the reproduction of sugar maple and American beech as a result of the competitive advantage of these species over those that are less tolerant of shade (Burger and Kotar, 2003). The wet mineral soils, which make up about 69,000 acres, support stands of balsam fir, white spruce, aspen, and red maple. The large areas of muck, which make up about 108,000 acres, support stands of northern whitecedar, tamarack, and black spruce.

Forestland Management and Productivity

Management for forest products on the different kinds of soil in the survey area varies, but it is governed mainly by the species in the stand. One management alternative might favor shade-tolerant northern hardwood species using uneven-aged management. Another management alternative might favor shade-intolerant aspen using an even-aged approach. Management should include controlling erosion, planting trees where natural regeneration is undesirable or insufficient, controlling vegetation that competes with natural or planted regeneration, improving seedling survival, harvesting in a timely manner, controlling damage by insects and disease, removing cull trees and undesirable species, and maintaining optimum basal area.

Table 7 can help woodland owners or forest managers plan the use of soils for wood crops. Only those soils suitable for wood crops are listed.

Erosion hazard ratings are based on the soil erosion factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Site preparation ratings 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.

Windthrow hazard is the likelihood that trees will be uprooted by the wind because the soil is not deep enough for adequate root anchorage. The main restrictions that affect rooting are a seasonal high water table and the depth to bedrock, a fragipan, or other limiting layers. A rating of *slight* indicates that under normal conditions no trees are blown down by the wind. Strong winds may damage trees, but they do not uproot them. A rating of *moderate* indicates that some trees can be blown down during periods when the soil is wet and winds are moderate or strong. A rating of *severe* indicates that many trees can be blown down during these periods.

Seedling mortality ratings 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.

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.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic feet per acre per year, indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Suggested trees to plant are those that are suitable for commercial wood production.

Forestland Harvesting

Table 8 provides expanded information concerning the operability of harvesting equipment. The table gives information about operating harvesting or thinning equipment in logging areas and on skid roads, log landings, and haul roads. Limitations are given for the most limiting season and for the preferred operating season. The most limiting season in this survey area generally is spring or late fall. In some areas, however, it is during dry periods in summer, when loose sand can limit trafficability on deep, excessively drained, sandy soils.

The preferred operating season is the period when harvesting or thinning causes the least amount of soil damage. This period generally is when the soil is not too wet or when the ground is frozen or partly frozen or has an adequate snow cover.

For limitations affecting construction of *haul roads*, the ratings are based on slope, flooding, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The soils are described as well suited, moderately suited, and poorly suited. A rating of *well suited* indicates that no significant limitations affect construction activities, *moderately suited* indicates that one or more limitations can cause some difficulty in construction, and *poorly suited* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of suitability for *log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *logging areas and skid roads* 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.

Forest Habitat Types

The information in this section is derived from field guides developed for Michigan (Coffman and others, 1980; Burger and Kotar, 2003). The system of habitat classification used in the guides is based on the concept that plants occur in predictable patterns or communities and that these communities reflect differences in site characteristics.

For the purpose of this publication, only the habitat types developed for the eastern Upper Peninsula of Michigan are discussed. A limited number of sites of relatively minor extent were not adequately sampled and are not included in the guides. These areas are dune communities, lowland forests, forested wetlands, and areas dominated by organic soils.

Besides identifying the various habitat types by means of vegetative keys, the guides also provide information about the different possible successional stages for most of the habitat types. The successional stages depend largely on how the forest has been disturbed. They include the succession after logging in the original climax stands, the succession after logging in second-growth stands, and the succession in stands that have been both logged and burned.

The guides give the suggested forest management for each of the successional stages. This management includes methods of thinning and harvest, site preparation, and measures that improve regeneration of the stands. The potential productivity in terms of a site index and the mean annual volume, in cubic feet per acre per year, is given for most of the habitat types. The development of the descriptive or interpretive information for some of the habitat types, however, is based on limited data and thus should be used with caution.

Habitat types have been determined for each map unit in the survey area, except for miscellaneous areas, such as Pits, quarry. A total of 250 habitat notecards were collected, and the emphasis was on the major soils of the county. If the data were inconclusive, no habitat type was assigned. The primary habitat type is the one that is most common for the map unit. The secondary habitat type is less common. Habitat types are listed in the map unit descriptions and in the "Interpretive Groups" section.

The following paragraphs describe the habitat types in the survey area. They provide information about the potential climax species, some of the common understory species, and, if known, the potential productivity of the habitat type.

AOC—Acer-Osmorhiza-Caulophyllum habitat type. This habitat type has a potential climax overstory dominated by sugar maple. Other species include eastern hemlock and American basswood. American elm, white ash, and eastern hophornbeam are in some areas. The dominant ground flora include spinulose woodfern, blue cohosh, sweet cicely, lady fern, smooth yellow violet, Canada white violet, and downy yellow violet. The potential productivity for northern hardwoods is high.

AQV—Acer-Quercus-Vaccinium habitat type. This habitat type has a potential climax overstory dominated by red maple and northern red oak. Other species include eastern hemlock, eastern white pine, balsam fir, and white spruce. The dominant ground flora includes lowbush blueberry, Canada blueberry, bracken fern, wintergreen, bigleaf aster, and beaked hazelnut. The potential productivity is moderately low for northern hardwoods, moderate for aspen, and moderately high for red pine and jack pine.

ATD—Acer-Tsuga-Dryopteris habitat type. This habitat type has a potential climax overstory dominated by sugar maple. Other species include eastern hemlock and American basswood. Yellow birch, red maple, and American elm are in some areas. The dominant ground flora includes spinulose woodfern, rosy twistedstalk, hairy Solomon's seal, scarlet alder, and Canada mayflower. The potential productivity is moderately high for northern hardwoods and high for aspen. The potential productivity for red pine plantations is high if plant competition is controlled.

ATD-D—Acer-Tsuga-Dryopteris habitat type, Dryopteris phase. This habitat type has a potential climax overstory dominated by sugar maple. Other species include eastern hemlock and American basswood. Yellow birch, red maple, and American elm are in some areas. The dominant ground flora includes spinulose woodfern, rosy twistedstalk, hairy Solomon's seal, red elderberry, and Canada mayflower. The potential productivity is moderately high for northern hardwoods and high for aspen. The potential productivity for red pine plantations is high if plant competition is controlled.

AVO—Acer-Viola-Osmorhiza habitat type. This habitat type has a potential climax overstory dominated by sugar maple. Other species include American basswood, white ash, yellow birch, eastern hophornbeam, eastern hemlock, and American elm. The dominant ground flora includes Canada white violet, sweet cicely, spinulose woodfern, lady fern, hairy Solomon's seal, and rosy twistedstalk. The potential productivity is high for northern hardwoods and aspen. It also is high for red pine plantations if plant competition is controlled.

AVO-A—Acer-Viola-Osmorhiza habitat type, Adiantum phase. This habitat type has a potential climax overstory dominated by sugar maple. Other species include

American basswood, white ash, yellow birch, eastern hophornbeam, eastern hemlock, and American elm. The dominant ground flora includes Canada white violet, sweet cicely, spinulose woodfern, wild leek, maidenhair fern, lady fern, Solomon's seal, and rosy twistedstalk. The potential productivity is high for northern hardwoods and aspen. It also is high for red pine plantations if plant competition is controlled.

AVO-CI—Acer-Viola-Osmorhiza habitat type, Circaea-Impatiens phase. This habitat type has a potential climax overstory dominated by sugar maple. Other species include American basswood, white ash, yellow birch, eastern hophornbeam, eastern hemlock, and American elm. The dominant ground flora includes Canada white violet, sweet cicely, spinulose woodfern, lady fern, Solomon's seal, rosy twistedstalk, jewelweed, and alpine circaea. The potential productivity is high for northern hardwoods and aspen. It also is high for red pine plantations if plant competition is controlled.

FE—Fraxinus-Eupatorium habitat type. This habitat type has a potential climax overstory dominated by black ash and American elm. Other species include red maple, balsam fir, and white ash. The dominant ground flora consists of sedge, speckled alder, northern dewberry, boneset, spotted joe-pye weed, and water hemlock.

FI—Fraxinus-Impatiens habitat type. This habitat type has a potential climax overstory dominated by white ash and red maple. Other species include sugar maple, black ash, and balsam fir. The dominant ground flora includes spotted touchmenot, sedges, alpine, circaea, spinulose woodfern, lady fern, scarlet alder, and field mint. The potential productivity for northern hardwoods is moderate.

FMC—Fraxinus-Mentha-Carex habitat type. This habitat type has a potential climax overstory dominated by black ash and American elm. Other species include red maple and balsam fir. The dominant ground flora includes sedges, field mint, speckled alder, and spotted touchmenot.

PCS—Picea-Chamaedaphne-Sphagnum habitat type. This habitat type has a potential climax overstory dominated by black spruce. Other species include tamarack and northern whitecedar. The dominant ground flora includes leatherleaf, bog rosemary, pale laurel, sphagnum mosses, Labrador tea, sedges, and Canada blueberry.

PVC—Pinus-Vaccinium-Carex habitat type. This habitat type has a potential climax overstory dominated by jack pine. Other species include red pine, black spruce, and white pine. The dominant ground flora includes sedges, low sweet blueberry, sweetfern, juneberry, Canada mayflower, and spinulose woodfern. Potential productivity is moderate for jack pine.

QAE—Quercus-Acer-Epigaea habitat type. This habitat type has a potential climax overstory dominated by red oak and red maple. Other species are white spruce and white pine. The dominant ground flora includes bracken fern, trailing arbutus, wintergreen, lowbush blueberry, mosses, and Canada blueberry. The potential productivity is moderately low for aspen and moderate for red pine and jack pine.

TAM—Tsuga-Acer-Mitchella habitat type. This habitat type has a potential climax overstory dominated by sugar maple and eastern hemlock. Other species include red maple, American basswood, white ash, and yellow birch. The dominant ground flora consists of sedges, wild sarsaparilla, partridgeberry, horsetail, bigleaf aster, Canada mayflower, lady fern, American fly honeysuckle, rosy twistedstalk, and northern dewberry. The potential productivity is moderately low for northern hardwoods and moderate for aspen.

TM—Tsuga-Maianthemum habitat type. This habitat type has a potential climax overstory dominated by eastern hemlock, sugar maple, and red maple. Other species include yellow birch, white spruce, balsam fir, white pine, red oak, northern whitecedar, and American basswood. The dominant ground flora includes Canada mayflower, bracken fern, sedges, American starflower, and wild sarsaparilla. The potential

productivity is moderate for northern hardwoods, moderately high for aspen, and high for red pine and jack pine.

TMC—Tsuga-Maianthemum-Coptis habitat type. This habitat type has a potential climax overstory dominated by eastern hemlock and red maple. Sugar maple and yellow birch are common. Other species include balsam fir, white spruce, and northern whitecedar. The dominant ground flora includes Canada mayflower, goldthread, yellow beadlily, bunchberry dogwood, American starflower, and spinulose woodfern. The potential productivity is moderate for northern hardwoods.

TMC-D—Tsuga-Maianthemum-Coptis habitat type, Dryopteris phase. This habitat type has a potential climax overstory dominated by eastern hemlock and red maple. Sugar maple and yellow birch are common. Other species include balsam fir, white spruce, and northern whitecedar. The dominant ground flora includes Canada mayflower, goldthread, yellow beadlily, bunchberry dogwood, American starflower, spinulose woodfern, longbeech fern, oak fern, and Solomon's seal. The potential productivity is moderate for northern hardwoods and aspen.

TMC-V—Tsuga-Maianthemum-Coptis habitat type, Vaccinium phase. This habitat type has a potential climax overstory dominated by eastern hemlock and red maple. Sugar maple and yellow birch are common. Other species include balsam fir, white spruce, and northern whitecedar. The dominant ground flora includes Canada mayflower, goldthread, yellow beadlily, bunchberry dogwood, American starflower, Canada blueberry, lowbush blueberry, and spinulose woodfern. The potential productivity is moderate for northern hardwoods and aspen.

TMV—Tsuga-Maianthemum-Vaccinium habitat type. This habitat type has a potential climax overstory dominated by eastern hemlock and red maple. Other species include sugar maple, white pine, balsam fir, white spruce, and northern red oak. The dominant ground flora includes Canada blueberry, wild sarsaparilla, bracken fern, Canada mayflower, lowbush blueberry, yellow beadlily, and wood betony. The potential productivity is moderate for northern hardwoods, moderately high for aspen, and high for red pine and jack pine.

TTM—Tsuga-Thuja-Mitella habitat type. This habitat type has a potential climax overstory dominated by northern whitecedar and eastern hemlock. Other species include balsam fir and red maple. The dominant ground flora includes sphagnum, naked miterwort, sedges, Canada mayflower, American starflower, twinflower, goldthread, bunchberry dogwood, and fringed polygala.

TTP—Tsuga-Thuja-Petasites habitat type. This habitat type has a potential climax overstory dominated by eastern hemlock and northern whitecedar. Other species include balsam fir, red maple, and sugar maple. The dominant ground flora includes palmate-leaved sweet coltsfoot, bigleaf aster, sedges, barren strawberry, sarsaparilla, and black snakeroot. The potential productivity is moderately low for aspen.

TTS—Tsuga-Thuja-Sphagnum habitat type. This habitat type has a potential climax overstory dominated by eastern hemlock and northern whitecedar. Other species include balsam fir, black spruce, and red maple. The dominant ground flora includes sphagnum, goldthread, bunchberry dogwood, sedges, Canada mayflower, American starflower, and wood sorrel.

Recreation

Schoolcraft County ranks first in the State in terms of land available for public recreational uses. About 684,284 acres in the county consists of forestland. There are more than 320 inland lakes, more than 700 miles of streams and rivers, and 46 miles of Lake Michigan shoreline.

Schoolcraft County has 247,187 acres of State-owned land suitable for hunting, fishing, boating, camping, picnicking, hiking, swimming, snowmobiling, and cross-

country skiing. Other recreational areas include county parks, golf courses, and private campgrounds.

The soils of the survey area are rated in tables 9a and 9b 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 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the 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 9a and 9b 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.

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

Schoolcraft County has a diverse population of wildlife. Wildlife species include whitetail deer, black bear, moose, red fox, coyotes, bobcat, mink, muskrat, beaver, otter, snowshoe hare, ruffed grouse, sharptail grouse, various hawks, waterfowl, and numerous song birds. A number of endangered or protected species live or nest in the county. Among these are the bald eagle, osprey, sandhill crane, common loon, fisher, pine marten, and gray wolf. Many lakes and streams in the county contain northern pike, walleye, yellow perch, bluegill, largemouth bass, and trout. Steelhead and salmon spawn in rivers and streams that flow into Lake Michigan.

The Seney National Wildlife Refuge is in Schoolcraft County. The Refuge is 95,000 acres of marsh, swamp, bog, and forest and provides habitat for over 200 species of birds.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or

maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wild rice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 11a and 11b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, and shallow excavations.

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 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, 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.

Sanitary Facilities

Tables 12a and 12b 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 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Tables 13a and 13b 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.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 13a, 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 sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

In table 13b, 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 table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, or topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These

properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Tables 14a and 14b 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; 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 table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other

permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

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 determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 15 gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group

index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

Physical Properties of the Soils

Table 16 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, 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 (Ksat) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (Ksat). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an

important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Erosion factors are shown in the table as the K factor 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 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 described in the “National Soil Survey Handbook,” which is available in local offices of the Natural Resources Conservation Service or on the Internet.

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 of the Soils

Table 17 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

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.

Soil Features

Table 18 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, ortstein, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

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.

Water Features

Soil moisture status is an estimate of the fluctuating water content in a soil. It greatly influences vegetation type and plant growth; physical properties of soils, such as permeability, workability, strength, linear extensibility, and frost action; and chemical interactions and transport. Many other properties, qualities, and interpretations also are affected. Soil moisture status is important in the classification of soils, wetland, and habitat.

Table 19 gives estimates of soil moisture for each component of a map unit at various depths for every month of the year. The depths displayed are representative values that are indicative of conditions that occur most commonly. *Dry* indicates a moisture condition under which most plants (especially crops) cannot extract water for growth. *Moist* indicates a moisture condition under which soil water is most readily available for plant growth. *Wet* indicates a condition under which water will stand in an unlined hole or at least a condition under which the soil is too wet for the growth of most agricultural species. A moisture status of 4.0-6.7 (wet) indicates that most of the time the component is saturated at some depth between 4.0 feet and 6.7 feet during the month designated. In some years the soil may be saturated at a depth of less than 4.0 feet or more than 6.7 feet; however, field observations indicate that the soil will be saturated between these depths in most years. In the summer, the soil may show the effects of drying plus intermittent rains that result in a moist or wet layer over a dry layer that gets moist or wet again.

Table 20 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 20 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.

Table 20 also shows the *kind of water table*, that is, apparent or perched. An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, 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.

Characterization Data for Selected Soils

Some of the major soils in Schoolcraft County were sampled by the Soil Survey Laboratory in Lincoln, Nebraska. The laboratory data obtained from the soil samples included analyses of particle-size distribution, rock fragments, bulk density, and moisture retention. Complete chemical analyses also were performed on each sample, and spodic horizon criteria were evaluated on appropriate samples. Standard National Cooperative Soil Survey procedures were used for all analyses (USDA/NRCS, 1996).

These data were used in classifying and correlating the soils and in evaluating their behavior, especially under forestry uses. Nine pedons were selected as representative of their respective series. These series and their laboratory identification numbers are as follows:

Bursaw (Delta) (S03MI-153-040)
Cookson (S02MI-153-004)
Gilchrist (S03MI-153-027)
Gulliver (S01MI-153-006)
Hiawatha (S01MI-153-003)
Manistique (S02MI-153-001)
Seney (S03MI-153-038)
Shingleton (S03MI-153-045)
Shuberts (S02MI-153-002)

Partial laboratory analysis was performed on the following series:

Chippeny (H04MI-153-069)
Graveraet (S02MI-153-005)
Beavertail (S03MI-153-043)

Information from all of these soil analyses is available from the Soil Survey Laboratory in Lincoln, Nebraska (online at http://soils.usda.gov), and in the State office of the Natural Resources Conservation Service, East Lansing, Michigan.

In addition, many soils were sampled for texture in the field soil survey office. The testing was performed using standardized procedures according to the National Soil Survey Laboratory. The results of these tests are available upon request from the Marquette Service Center, 780 Commerce Drive, Suite D, Marquette, MI 49855.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2003). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalfs*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, active, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in

the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (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, 2003). Unless otherwise indicated, colors in the descriptions are for moist soil. The official pedon description and the range of important characteristics are available online at http:\\soils.usda.gov.

Amadon Series

The Amadon series consists of shallow, well drained, moderately permeable soils on ground moraines and bedrock benches. These soils formed in loamy glaciolacustrine or till deposits overlying limestone bedrock. Slopes range from 0 to 35 percent.

Typical pedon of Amadon sandy loam, in an area of Amadon-Longrie sandy loams, 1 to 6 percent slopes; 1,800 feet south and 50 feet east of the northwest corner of sec. 27, T. 42 N., R. 11 W., Newton Township, Mackinac County, Michigan; USGS Gould City, Michigan, topographic quadrangle; lat. 46 degrees 00 minutes 31 seconds N. and long. 85 degrees 40 minutes 33 seconds W., NAD 27:

Oe—0 to 2 inches; partially decomposed leaf litter.

E—2 to 8 inches; pinkish gray (7.5YR 6/2) sandy loam, pinkish gray (10YR 7/2) dry; weak medium subangular blocky structure; very friable; many fine to coarse roots; about 2 percent gravel; moderately acid; clear smooth boundary.

Bhs—8 to 10 inches; dark reddish brown (5YR 3/2) fine sandy loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; about 2 percent gravel; moderately acid; clear smooth boundary.

Bs—10 to 15 inches; reddish brown (7.5YR 3/4) fine sandy loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; about 2 percent gravel; moderately acid; clear smooth boundary.

2R—15 inches; fractured, hard limestone bedrock.

Angelica Series

The Angelica series consists of very deep, poorly drained, moderately slowly permeable soils on ground moraines. These soils formed in loamy till deposits. Slopes range from 0 to 2 percent.

Typical pedon of Angelica muck, in an area of Ensley and Angelica soils; 200 feet southeast of the northwest corner of sec. 29, T. 40 N., R. 20 W., Ensign Township, Delta County, Michigan; USGS Ogontz, Michigan, topographic quadrangle; lat. 45 degrees 50 minutes 20 seconds N. and long. 86 degrees 48 minutes 39 seconds W., NAD 27:

Oa—0 to 2 inches; black (10YR 2/1) muck; weak medium granular structure; friable; slightly acid; abrupt smooth boundary.

A—2 to 6 inches; grayish brown (10YR 3/1) loam; weak medium subangular blocky structure; friable; slightly acid; abrupt wavy boundary.

Bg—6 to 10 inches; grayish brown (2.5Y 5/2) sandy loam; weak medium subangular blocky structure; friable; many medium distinct dark gray (5Y 4/1) masses of iron depletions throughout; about 2 percent gravel; neutral; abrupt wavy boundary.

Bw1—10 to 14 inches; brown (7.5YR 4/4) loam; weak fine subangular blocky structure; friable; common fine distinct yellowish red (5YR 5/6) masses of iron accumulation throughout; about 2 percent gravel; neutral; clear wavy boundary.

Bw2—14 to 17 inches; reddish brown (5YR 5/4) sandy clay loam; weak medium subangular blocky structure; firm; common fine faint yellowish red (5YR 5/6)

masses of iron accumulation throughout; about 2 percent gravel; neutral; clear wavy boundary.

C—17 to 80 inches; light brown (7.5YR 6/4) loam; massive; friable; many medium distinct light brownish gray (2.5Y 6/2) iron depletions and many medium distinct brownish yellow (10YR 6/6) masses of iron accumulation throughout; about 3 percent gravel; slight effervescence; slightly alkaline.

Annanias Series

The Annanias series consists of very deep, somewhat poorly drained, moderately permeable soils on lake plains. These soils formed in loamy glaciolacustrine deposits. Slopes range from 0 to 3 percent.

Typical pedon of Annanias silt loam, 0 to 3 percent slopes; 250 feet west and 800 feet south of the northeast corner of sec. 20, T. 48 N., R. 8 W., McMillan Township, Luce County, Michigan; USGS Betsy Lake South, Michigan, topographic quadrangle; lat. 46 degrees 32 minutes 50 seconds N. and long. 85 degrees 19 minutes 27 seconds W., NAD 27:

Oa—0 to 4 inches; well decomposed forest litter.

E—4 to 7 inches; pinkish gray (7.5YR 6/2) silt loam, pinkish gray (7.5YR 7/2) dry; moderate fine subangular blocky structure; friable; common fine to coarse roots; extremely acid; abrupt wavy boundary.

Bhs—7 to 10 inches; dark brown (7.5YR 3/3) silt loam; moderate fine subangular blocky structure; friable; many fine to coarse roots; few fine distinct strong brown (7.5YR 4/6) masses of iron accumulation throughout; extremely acid; clear wavy boundary.

Bs—10 to 15 inches; brown (7.5YR 4/4) silt loam; moderate fine and medium subangular blocky structure; friable; common fine to coarse roots; few fine faint strong brown (7.5YR 4/6) masses of iron accumulation throughout; very strongly acid; clear wavy boundary.

BC—15 to 26 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; few fine and medium roots; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation throughout; very strongly acid; clear wavy boundary.

C1—26 to 47 inches; stratified, brown (7.5YR 5/4), reddish brown (5YR 5/4), and pale brown (10YR 6/3) silt loam and very fine sandy loam; massive; some weak medium platy structure; friable; common fine to coarse vesicular and tubular pores; few thin (1/8 inch thick) dark gray (7.5YR 4/1) organic stains; common coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation throughout; very strongly acid; gradual smooth boundary.

C2—47 to 80 inches; stratified, brown (7.5YR 5/3), reddish brown (5YR 5/4), and light brownish gray (10YR 6/2) silt loam and silt; massive; some weak medium platy structure inherent from deposition; friable; common fine to coarse vesicular and tubular pores; common coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation throughout; very strongly acid.

Arnheim Series

The Arnheim series consists of very deep, poorly drained, moderately permeable soils on flood plains. These soils formed in loamy alluvium. Slopes range from 0 to 2 percent.

Typical pedon of Arnheim mucky silt loam, in an area of Pelkie, occasionally flooded-Arnheim, frequently flooded, complex, 0 to 4 percent slopes; 2,310 feet north and 2,112 feet east of the southwest corner of sec. 33, T. 43 N., R. 14 W., Doyle

Township, Schoolcraft County, Michigan; USGS Merwin Lake, Michigan, topographic quadrangle; lat. 46 degrees 04 minutes 40 seconds N. and long. 86 degrees 03 minutes 53 seconds W., NAD 27:

A—0 to 6 inches; very dark gray (7.5YR 3/1) mucky silt loam, dark gray (7.5YR 4/1) dry; strong medium subangular blocky structure; friable; many fine and medium roots; moderately acid; abrupt smooth boundary.

Bg1—6 to 13 inches; grayish brown (2.5Y 5/2) silt loam; strong coarse angular blocky structure; firm; few fine roots; slightly acid; abrupt wavy boundary.

Bg2—13 to 32 inches; grayish brown (10YR 5/2) silt loam; strong coarse angular blocky structure; firm; many medium prominent reddish brown (5YR 4/4) and many coarse prominent strong brown (7.5YR 4/6) masses of iron accumulation throughout; common medium black (10YR 2/1) masses of iron manganese concretions on faces of peds; slightly acid; abrupt wavy boundary.

Cg—32 to 80 inches; stratified, light brownish gray (10YR 6/2) fine sandy loam, silt loam, and fine sand; moderate thick platy structure inherent from deposition; friable; many medium prominent brown (7.5YR 4/4) masses of iron accumulation throughout; common black (N 3/) organic stains on faces of peds; moderately acid.

Au Gres Series

The Au Gres series consists of very deep, somewhat poorly drained, rapidly permeable soils on ground moraines, lake plains, and outwash plains. These soils formed in sandy glaciofluvial deposits. Slopes range from 0 to 3 percent.

Typical pedon of Au Gres sand, 0 to 3 percent slopes; 2,000 feet east and 400 feet south of the northwest corner of sec. 28, T. 49 N., R. 8 W., McMillan Township, Luce County, Michigan; USGS Betsy Lake, Michigan, topographic quadrangle; lat. 46 degrees 37 minutes 15 seconds N. and long. 85 degrees 18 minutes 56 seconds W., NAD 27:

Oe—0 to 2 inches; partially decomposed forest litter.

E—2 to 7 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/2) dry; weak medium subangular blocky structure; friable; common fine to coarse roots; extremely acid; abrupt wavy boundary.

Bs1—7 to 12 inches; 90 percent strong brown (7.5YR 4/6) and 10 percent dark brown (7.5YR 3/4) sand; weak medium subangular blocky structure; friable; many fine to coarse roots; ortstein occupies 10 percent of the horizon and is moderately cemented; ortstein occurs as dark brown (7.5YR 3/4) tongues 2 to 4 inches wide extending to a depth of 15 inches; few fine faint strong brown (7.5YR 5/6) masses of iron accumulation; extremely acid; clear wavy boundary.

Bs2—12 to 17 inches; strong brown (7.5YR 5/6) sand; weak medium subangular blocky structure; friable; few fine to coarse roots; ortstein occupies 25 percent of the horizon and is moderately cemented; ortstein occurs as strong brown (7.5YR 5/6) and dark brown (7.5YR 3/4) tongues 1 to 4 inches wide extending to a depth of 24 inches; common fine distinct yellowish red (5YR 5/8) masses of iron accumulation; very strongly acid; clear wavy boundary.

BC—17 to 28 inches; brown (7.5YR 5/4) sand; weak medium subangular blocky structure; friable; common fine faint strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

C1—28 to 52 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid; clear wavy boundary.

C2—52 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid.

Auger Series

The Auger series consists of very deep, moderately well drained soils on lake plains. These soils formed in loamy glaciolacustrine deposits. Permeability is moderate. Slopes range from 0 to 6 percent.

Typical pedon of Auger silt loam, on a slope of 3 percent; 650 feet north of the southeast corner of sec. 17, T. 48 N., R. 8 W., McMillan Township, Luce County, Michigan; USGS Betsy Lake South, Michigan, topographic quadrangle; lat. 46 degrees 33 minutes 05 seconds N. and long. 85 degrees 19 minutes 23 seconds W., NAD 27:

Oe—0 to 2 inches; partially decomposed leaf litter; weak medium subangular blocky structure; friable; many fine to coarse roots; extremely acid; abrupt wavy boundary.

E—2 to 5 inches; brown (7.5YR 5/2) silt loam, pinkish gray (7.5YR 7/2) dry; moderate medium subangular blocky structure; friable; common fine to coarse roots; common charcoal fragments; extremely acid; abrupt irregular boundary.

Bhs—5 to 6 inches; black (5YR 2.5/1) silt loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; few charcoal fragments; extremely acid; abrupt irregular boundary.

Bs1—6 to 11 inches; mixed dark reddish brown (5YR 3/4) and reddish brown (5YR 4/4) silt loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; few charcoal fragments; extremely acid; clear irregular boundary.

Bs2—11 to 15 inches; mixed yellowish red (5YR 4/6 and 5/6) silt loam; moderate medium subangular blocky structure; friable; common fine to coarse roots; very strongly acid; clear wavy boundary.

BC—15 to 25 inches; brown (7.5YR 5/4) very fine sandy loam; moderate medium subangular blocky structure; friable; common fine and medium roots; very strongly acid; clear wavy boundary.

C1—25 to 63 inches; pale brown (10YR 6/3), light yellowish brown (10YR 6/4), and brown (7.5YR 5/4), stratified silt loam and silt; weak thick platy structure inherent from deposition; friable; common medium distinct strong brown (7.5YR 5/6 and 5/8) masses of iron accumulation; very strongly acid; clear wavy boundary.

C2—63 to 80 inches; brown (7.5YR 5/3 and 5/4) silt; weak thick platy structure inherent from deposition; friable; common medium and coarse prominent yellowish red (5YR 5/6 and 5/8) masses of iron accumulation; very strongly acid.

Ausable Series

The Ausable series consists of very deep, very poorly drained soils on flood plains. These soils formed in thin organic layers overlying sandy alluvium. Permeability is moderate or moderately rapid in the organic material and rapid in the sandy material. Slopes range from 0 to 2 percent.

Typical pedon of Ausable muck, in an area of Ausable, Deford, and Tawas mucks, frequently flooded; 2,376 feet south and 1,650 feet east of the northwest corner of sec. 22, T. 40 N., R. 17 W., Thompson Township, Schoolcraft County, Michigan; USGS Hiram Point, Michigan, topographic quadrangle; lat. 45 degrees 50 minutes 45 seconds N. and long. 86 degrees 23 minutes 23 seconds W., NAD 27:

Oa—0 to 9 inches; muck, black (5YR 2.5/1) broken face and rubbed; about 20 percent fiber, 1 percent rubbed; weak medium granular structure; very friable; common fine and medium roots; neutral; abrupt wavy boundary.

Cg1—9 to 14 inches; light yellowish brown (2.5Y 6/3) sand; weak fine granular structure; very friable; few fine and medium roots; few black (5YR 2.5/1) organic stains on surfaces along root channels; many common prominent strong brown (7.5YR 5/6) masses of iron accumulation along root channels and pores; slightly acid; abrupt wavy boundary.

Cg2—14 to 35 inches; light yellowish brown (2.5Y 6/3) sand; single grain; loose; few thin layers of black (N 2/) muck 1/4 to 1 inch thick; slightly acid; abrupt wavy boundary.

O´a—35 to 45 inches; black (N 2/) muck; weak medium platy structure; very friable; few thin layers of light yellowish brown (2.5Y 6/3) sand 1/4 to 1 inch thick; slightly acid; abrupt wavy boundary.

C´g—45 to 80 inches; light olive brown (2.5Y 5/3) sand; single grain; loose; neutral.

Beavertail Series

The Beavertail series consists of very deep, very poorly drained, very slowly permeable soils on ground moraines. These soils formed in deposits of very gravelly loamy till. Slopes range from 0 to 2 percent.

Typical pedon of Beavertail muck; 500 feet south and 400 feet east of the northwest corner of sec. 11, T. 41 N., R. 6 E., Drummond Township, Chippewa County, Michigan; USGS Meade Island, Michigan, topographic quadrangle; lat. 45 degrees 58 minutes 06 seconds N. and long. 83 degrees 39 minutes 20 seconds W., NAD 27:

Oa—0 to 8 inches; muck, black (N 2/) broken face and rubbed; moderate medium granular structure; friable; about 5 percent gravel; moderately alkaline; abrupt wavy boundary.

Bw—8 to 16 inches; light yellowish brown (2.5YR 6/4) very gravelly fine sandy loam; moderate medium subangular blocky structure; friable; common very fine and fine and few medium roots; about 40 percent gravel and 15 percent cobbles; strong effervescence; moderately alkaline; gradual wavy boundary.

Cg—16 to 29 inches; light brownish gray (2.5Y 6/2) very gravelly fine sandy loam; weak medium subangular blocky structure; firm; common fine prominent strong brown (10YR 6/6) masses of iron accumulation; about 40 percent gravel and 15 percent cobbles; strong effervescence; moderately alkaline; gradual wavy boundary.

Cd—29 to 80 inches; pale brown (10YR 6/3) very gravelly fine sandy loam; massive; firm; few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; about 40 percent gravel and 15 percent cobbles; strong effervescence; moderately alkaline.

Bursaw Series

The Bursaw series consists of very deep, moderately well drained soils on glacial lake beaches. These soils formed in gravelly beach deposits. Permeability is very rapid in the upper part and very slow in the lower part. Slopes range from 0 to 6 percent.

Typical pedon of Bursaw extremely gravelly coarse sand, in an area of Bursaw-Beavertail complex, 0 to 6 percent slopes; 400 feet south and 1,500 feet west of the center of sec. 11, T. 39 N., R. 17 W., Thompson Township, Schoolcraft County, Michigan; USGS Point Aux Barques, Michigan, topographic quadrangle; lat. 45 degrees 47 minutes 30 seconds N. and long. 86 degrees 21 minutes 53 seconds W., NAD 27:

Oe—0 to 4 inches; partially decomposed forest litter.

C1—4 to 16 inches; yellowish brown (10YR 5/4) extremely gravelly coarse sand; single grain; loose; common coarse to fine roots; about 60 percent gravel; about 10 percent cobbles; neutral; gradual wavy boundary.

C2—16 to 49 inches; brown (10YR 5/3) extremely gravelly coarse sand; single grain; loose; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the lower part of the horizon; common coarse to fine roots; about

60 percent gravel; about 10 percent cobbles; slightly alkaline; strong effervescence; abrupt wavy boundary.

2Cd—49 to 80 inches; brown (10YR 5/3) gravelly sandy loam; moderate medium platy structure; firm; about 10 percent gravel; about 5 percent cobbles; strong effervescence; moderately alkaline.

Caffey Series

The Caffey series consists of very deep, poorly drained soils on outwash plains, lake plains, and deltas. These soils formed in sandy glaciofluvial deposits overlying stratified glaciolacustrine deposits. Permeability is rapid in the solum and moderately slow in the substratum. Slopes range from 0 to 2 percent.

Typical pedon of Caffey muck; 50 feet east and 1,650 feet south of the northwest corner of sec. 16, T. 43 N., R. 8 W., Hudson Township, Mackinac County, Michigan; USGS Garnet, Michigan, topographic quadrangle; lat. 46 degrees 07 minutes 32 seconds N. and long. 85 degrees 19 minutes 13 seconds W., NAD 27:

Oa—0 to 6 inches; muck, black (10YR 2/1) broken face and rubbed; about 15 percent fibers, 2 percent rubbed; moderate medium granular structure; friable; neutral; abrupt smooth boundary.

Bw—6 to 12 inches; brown (10YR 5/3) sand; weak medium subangular blocky structure; very friable; few fine and medium roots; black (10YR 2/1) organic stains along root channels; common medium distinct (10YR 5/6) iron accumulations; slightly alkaline; clear smooth boundary.

Cg—12 to 21 inches; 60 percent grayish brown (10YR 5/2) and 40 percent dark yellowish brown (10YR 4/4), stratified medium and fine sand; massive; friable; common fine distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) iron accumulations; moderately alkaline; clear smooth boundary.

2C—21 to 35 inches; brown (10YR 5/3), gray (10YR 5/1), grayish brown (2.5Y 5/2), and light olive brown (2.5Y 5/4), stratified very fine sandy loam and loamy very fine sand; massive; friable; common medium distinct yellowish brown (10YR 5/6) and many medium distinct light olive brown (2.5Y 5/6) iron accumulations; slightly effervescent; moderately alkaline; clear wavy boundary.

2Cg—35 to 80 inches; grayish brown (2.5Y 5/2) very fine sandy loam; massive; friable; violently effervescent; moderately acid.

Carbondale Series

The Carbondale series consists of very deep, very poorly drained soils on outwash plains, ground moraines, and lake plains. These soils formed in herbaceous material more than 51 inches thick. Permeability ranges from moderately slow to moderately rapid. Slopes range from 0 to 2 percent.

Typical pedon of Carbondale muck, in an area of Carbondale, Lupton, and Tawas soils; 2,900 feet south and 800 feet west of the northeast corner of sec. 9, T. 43 N., R. 26 W., Wells Township, Marquette County, Michigan; USGS Northland NE, Michigan, topographic quadrangle; lat. 46 degrees 08 minutes 10 seconds N. and long. 87 degrees 33 minutes 25 seconds W., NAD 27:

Oa1—0 to 6 inches; muck, black (10YR 2/1) broken face and rubbed; about 10 percent fiber, 2 percent rubbed; weak fine granular structure; many very fine to coarse roots; slightly acid; clear wavy boundary.

Oa2—6 to 23 inches; muck, black (N 2.5/) broken face and rubbed; about 10 percent fiber, 2 percent rubbed; weak medium subangular blocky structure; slightly acid; clear smooth boundary.

Oa3—23 to 38 inches; muck, black (N 2.5/) broken face and rubbed; about 35 percent fiber, 10 percent rubbed; weak medium subangular blocky structure; slightly acid; clear smooth boundary.

Oe1—38 to 68 inches; mucky peat, black (10YR 2/1) broken face and rubbed; about 90 percent fiber, 33 percent rubbed; massive; neutral; clear smooth boundary.

Oe2—68 to 80 inches; mucky peat, black (10YR 2/1) broken face and rubbed; about 90 percent fiber, 20 percent rubbed; massive; neutral.

Cathro Series

The Cathro series consists of very deep, very poorly drained soils in depressions and drainageways on moraines and flood plains. These soils formed in organic deposits over loamy till. Permeability is moderately slow to moderately rapid in the organic part of the profile and moderately slow in the loamy part. Slopes are 0 to 1 percent.

Typical pedon of Cathro muck, in an area of Cathro-Ensley mucks; 1,500 feet west and 20 feet south of the northeast corner of sec. 21, T. 22 N., R. 22 W., Limestone Township, Alger County, Michigan; USGS Diffin, Michigan, topographic quadrangle; lat. 46 degrees 12 minutes 08.15 seconds N. and long. 87 degrees 03 minutes 35.45 seconds W., NAD 27:

Oa1—0 to 8 inches; very dark gray (10YR 3/1) muck; about 30 percent fiber, 5 percent rubbed; weak medium subangular blocky structure; very friable; many very fine to coarse roots; moderately acid; clear wavy boundary.

Oa2—8 to 16 inches; very dark brown (10YR 2/2) muck; about 50 percent fiber, 10 percent rubbed; weak medium subangular blocky structure; very friable; moderately acid; clear wavy boundary.

Oa3—16 to 34 inches; black (10YR 2/1) muck; about 15 percent fiber, 2 percent rubbed; 5 percent mineral content; massive; friable; moderately acid; abrupt smooth boundary.

2C1—34 to 46 inches; reddish brown (10YR 5/3) gravelly fine sandy loam; massive; friable; about 12 percent gravel and 6 percent cobbles; slightly acid; gradual wavy boundary.

2C2—46 to 80 inches; reddish brown (5YR 5/4) gravelly fine sandy loam; massive; friable; about 12 percent gravel and 6 percent cobbles; slight effervescence; slightly alkaline.

Charlevoix Series

The Charlevoix series consists of very deep, somewhat poorly drained soils on ground moraines. These soils formed in a silty or loamy eolian mantle over loamy till. Permeability is moderate. Slopes range from 0 to 3 percent.

Typical pedon of Charlevoix silt loam, in an area of Charlevoix-Ensley complex, 0 to 3 percent slopes; about 1,300 feet east and 300 feet south of the northwest corner of sec. 20, T. 44 N., R. 22 W., Limestone Township, Alger County, Michigan; USGS Diffin, Michigan, topographic quadrangle; lat. 46 degrees 12 minutes 08.52 seconds N. and long. 87 degrees 05 minutes 39.43 seconds W., NAD 27:

Oa—0 to 2 inches; partially decomposed forest litter; moderate fine granular structure; friable; many very fine to coarse roots; very strongly acid; abrupt smooth boundary.

E—2 to 5 inches; dark reddish gray (5YR 4/2) silt loam, light gray (5YR 7/1) dry; weak fine subangular blocky structure; friable; many very fine to coarse roots; common

fine vesicular pores; about 2 percent gravel and 1 percent cobbles; strongly acid; abrupt smooth boundary.

Bhs—5 to 7 inches; dark reddish brown (5YR 3/2) silt loam; weak fine subangular blocky structure; friable; many very fine to coarse roots; common fine vesicular pores; about 2 percent gravel and 1 percent cobbles; very strongly acid; abrupt broken boundary.

Bs—7 to 12 inches; dark reddish brown (5YR 3/4) silt loam; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation on faces of peds; very dark gray (5YR 3/1), firm organic accumulations on horizontal surfaces of peds; weak fine subangular blocky structure; friable; many very fine to coarse roots; common fine vesicular pores; about 2 percent gravel and 1 percent cobbles; strongly acid; clear broken boundary.

2E/B—12 to 16 inches; brown (7.5YR 5/4) loamy fine sand, pink (7.5YR 7/3) dry (E); occupies about 60 percent of the horizon and occurs as tongues extending into or completely surrounding isolated remnants of reddish brown (5YR 4/4) fine sandy loam (Bt); few distinct dark reddish brown (5YR 3/4) clay films on faces of peds and in root channels; weak thick platy structure parting to weak moderate subangular blocky; firm; few very fine and fine roots; common fine vesicular pores; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; 6 percent gravel and 4 percent cobbles; neutral; clear wavy boundary.

2B/E—16 to 27 inches; reddish brown (5YR 4/4) cobbly fine sandy loam (Bt); few distinct dark reddish brown (5YR 3/4) clay films on faces of peds and in root channels; occupies about 70 percent of the horizon; penetrated by tongues of brown (7.5YR 5/4) cobbly loamy fine sand (E); common fine distinct strong brown (7.5YR 5/6) mottles; weak coarse subangular blocky structure; friable; common fine vesicular pores; few distinct clay films on faces of peds and in root channels; 12 percent gravel and 8 percent cobbles; moderately alkaline; gradual wavy boundary.

2C—27 to 80 inches; reddish brown (5YR 5/4) cobbly fine sandy loam; common fine distinct strong brown (7.5YR 5/6) mottles; massive; some weak thick platiness inherent from deposition; friable; 12 percent gravel and 8 percent cobbles; slightly effervescent; moderately alkaline.

Chippeny Series

The Chippeny series consists of moderately deep, very poorly drained soils in depressions and drainageways on ground moraines. These soils formed in organic deposits over loamy to clayey material overlying limestone, dolomite, or dolomitic sandstone bedrock. Permeability is moderately slow to moderately rapid in the organic part of the profile and moderate or moderately slow in the mineral part. Slopes are 0 to 1 percent.

Typical pedon of Chippeny muck; in the northeast corner of sec. 9, T. 41 N., R. 21 W., Masonville Township, Delta County, Michigan; USGS Rapid River, Michigan, topographic quadrangle:

Oa1—0 to 3 inches; muck, black (5YR 2/1) broken face and rubbed; about 25 percent fiber, less than 5 percent rubbed; weak fine granular structure; primarily herbaceous fiber; slightly alkaline; clear smooth boundary.

Oa2—3 to 6 inches; muck, black (5YR 2/1) broken face, dark reddish brown (5YR 2/2) rubbed; about 50 percent fiber, less than 5 percent rubbed; weak medium granular structure; slightly alkaline; clear smooth boundary.

Oa3—6 to 20 inches; muck, very dark gray (5YR 3/1) broken face and rubbed; about 17 percent fiber, less than 5 percent rubbed; massive; primarily herbaceous fiber;

nonsticky; about 40 percent ash content; slightly alkaline; gradual smooth boundary.

2C—20 to 28 inches; dark grayish brown (2.5Y 4/2) silty clay loam; massive; sticky; slightly alkaline; abrupt smooth boundary.

3R—28 inches; limestone bedrock.

Cookson Series

The Cookson series consists of moderately deep, well drained, moderately permeable soils on ground moraines. These soils formed in loamy glaciofluvial deposits over loamy till underlain by limestone bedrock. Slopes range from 1 to 12 percent.

Typical pedon of Cookson silt loam, in an area of Cookson-Amadon silt loams, 1 to 6 percent slopes; 1,056 feet east and 2,112 feet south of the northwest corner of sec. 16, T. 42 N., R. 13 W., Doyle Township, Schoolcraft County, Michigan; USGS Blaney Park, Michigan, topographic quadrangle; lat. 46 degrees 02 minutes 08 seconds N. and long. 85 degrees 56 minutes 40 seconds W., NAD 27:

Oi—0 to 3 inches; slightly decomposed forest litter.

E—3 to 7 inches; brown (7.5YR 4/2) silt loam, gray (7.5YR 6/1) dry; weak medium subangular blocky structure parting to weak coarse granular; friable; common fine and few medium and coarse roots; strongly acid; clear wavy boundary.

Bhs—7 to 11 inches; dark reddish brown (5YR 3/2) silt loam; weak medium subangular blocky structure; friable; many fine and few medium and coarse roots; about 2 percent fine gravel; strongly acid; clear wavy boundary.

Bs—11 to 16 inches; dark brown (7.5YR 3/4) sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; about 7 percent fine to coarse gravel; moderately acid; abrupt broken boundary.

2E/B—16 to 21 inches; brown (7.5YR 5/3) fine sandy loam, light gray (7.5YR 7/1) dry (E); occupies about 85 percent of the horizon; surrounding reddish brown (5YR 4/3) fine sandy loam (Bt); moderate medium subangular blocky structure; firm; few fine roots; many fine vesicular pores; about 2 percent fine and medium gravel; moderately acid; clear irregular boundary.

2Bt—21 to 31 inches; reddish brown (5YR 4/3) sandy clay loam; moderate medium subangular blocky structure; firm; few fine roots; many fine vesicular pores; few faint dark reddish brown (5YR 3/4) clay films on faces of peds; about 2 percent fine and medium gravel; neutral; clear wavy boundary.

2C—31 to 36 inches; reddish brown (5YR 5/4) fine sandy loam; massive; firm; about 5 percent fine, medium, and coarse gravel; moderately alkaline; strong effervescence; abrupt smooth boundary.

3R—36 inches; hard, fractured limestone bedrock.

Cozy Series

The Cozy series consists of very deep, moderately well drained soils on ground moraines and drumlins. These soils formed in till. Permeability is moderate in the solum and very slow in the substratum. Slopes range from 0 to 6 percent.

Typical pedon of Cozy cobbly fine sandy loam, 0 to 6 percent slopes; 1,100 feet north and 300 feet east of the southwest corner of sec. 10, T. 42 N., R. 11 W., Newton Township, Mackinac County, Michigan; USGS Gould City, Michigan, topographic quadrangle; lat. 46 degrees 02 minutes 45 seconds N. and long. 85 degrees 40 minutes 29 seconds W., NAD 27:

Oa—0 to 5 inches; black (N 2/), well decomposed leaf litter; moderate medium granular structure; friable; many fine to coarse roots; about 15 percent cobbles; moderately acid; abrupt wavy boundary.

E—5 to 6 inches; brown (7.5YR 5/2) cobbly fine sandy loam, light brownish gray (10YR 6/2) dry; weak fine subangular blocky structure; friable; many fine to coarse roots; about 2 percent gravel and 15 percent cobbles; moderately acid; abrupt broken boundary.

Bhs—6 to 10 inches; dark brown (7.5YR 3/2) cobbly fine sandy loam; weak medium subangular blocky structure; friable; many fine to coarse roots; about 2 percent gravel and 15 percent cobbles; moderately acid; clear irregular boundary.

Bs—10 to 14 inches; dark brown (7.5YR 3/4) cobbly sandy loam; weak fine subangular blocky structure; friable; common fine to coarse roots; about 2 percent gravel and 15 percent cobbles; slightly acid; abrupt irregular boundary.

Cd—14 to 80 inches; light brown (7.5YR 6/3) very gravelly sandy loam; strong thick platy structure; very firm; about 30 percent gravel and 15 percent cobbles; strongly effervescent; slightly alkaline.

Croswell Series

The Croswell series consists of very deep, moderately well drained, rapidly permeable soils on low dunes, outwash plains, and lake plains. These soils formed in sandy glaciofluvial deposits. Slopes range from 0 to 6 percent.

Typical pedon of Croswell sand, 0 to 6 percent slopes; 1,800 feet east and 900 feet north of the southwest corner of sec. 29, T. 44 N., R. 9 W., Garfield Township, Mackinac County, Michigan; USGS Gilchrist, Michigan, topographic quadrangle; lat. 46 degrees 10 minutes 32 seconds N. and long. 85 degrees 27 minutes 35 seconds W., NAD 27:

Oe—0 to 2 inches; partially decomposed forest litter.

E—2 to 6 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/2) dry; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; abrupt wavy boundary.

Bs1—6 to 8 inches; dark brown (7.5YR 4/4) sand; weak medium subangular blocky structure; very friable; many fine to coarse roots; strongly acid; clear irregular boundary.

Bs2—8 to 15 inches; strong brown (7.5YR 5/6) sand; weak medium subangular blocky structure; very friable; common medium and fine roots; strongly acid; clear irregular boundary.

BC—15 to 22 inches; brownish yellow (10YR 6/6) sand; single grain; loose; few fine roots; moderately acid; gradual wavy boundary.

C—22 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the lower part of the horizon; moderately acid.

Cublake Series

The Cublake series consists of very deep, moderately well drained soils on outwash plains. These soils formed in sandy glaciofluvial deposits. Permeability is rapid in the solum and moderate in the stratified substratum. Slopes range from 0 to 6 percent.

Typical pedon of Cublake loamy sand; 3,800 feet north and 3,000 feet east of the southwest corner of sec. 7, T. 38 N., R. 18 E., Florence County, Wisconsin:

A—0 to 3 inches; black (10YR 2/1) loamy sand, dark gray (10YR 4/1) dry; weak fine granular structure; very friable; many very fine and fine and few medium and coarse roots; about 1 percent gravel; very strongly acid; clear smooth boundary.

E—3 to 4 inches; brown (7.5YR 4/2) loamy sand, pinkish gray (7.5YR 6/2) dry; weak fine subangular blocky structure; very friable; many very fine and fine and few medium and coarse roots; about 1 percent gravel; very strongly acid; abrupt broken boundary.

Bs1—4 to 10 inches; dark brown (7.5YR 3/4) loamy sand; weak fine and medium subangular blocky structure; very friable; common very fine and fine and few medium and coarse roots; about 3 percent gravel; strongly acid; clear wavy boundary.

Bs2—10 to 23 inches; brown (7.5YR 4/4) loamy sand; weak fine and medium subangular blocky structure; very friable; common very fine and fine and few medium and coarse roots; about 3 percent gravel; moderately acid; clear wavy boundary.

BC—23 to 32 inches; dark yellowish brown (10YR 4/4) sand; single grain; loose; few fine roots; about 8 percent gravel; moderately acid; abrupt wavy boundary.

C1—32 to 40 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation; about 8 percent gravel; moderately acid; abrupt wavy boundary.

C2—40 to 48 inches; yellowish brown (10YR 5/4) fine sand with thin strata of very fine sand; massive; very friable; few fine and medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid; abrupt wavy boundary.

2C3—48 to 60 inches; brown (7.5YR 4/4), stratified very fine sandy loam and silt loam with a few thin strata of very fine sand; massive; friable; many fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid.

Cusino Series

The Cusino series consists of very deep, somewhat excessively drained soils on outwash plains, kame terraces, and moraines. These soils formed in sandy and gravelly outwash. Permeability is rapid in the solum and very rapid in the substratum. Slopes range from 0 to 70 percent.

Typical pedon of Cusino loamy sand, in an area of Kalkaska-Cusino complex, 0 to 6 percent slopes; 2,100 feet north and 600 feet east of the southwest corner of sec. 24, T. 46 N., R. 19 W., Munising Township, Alger County, Michigan; USGS Munising, Michigan, topographic quadrangle; lat. 46 degrees 22 minutes 04 seconds N. and long. 86 degrees 38 minutes 02 seconds W., NAD 27:

Oa—0 to 2 inches; highly decomposed forest litter.

E—2 to 8 inches; dark gray (5YR 4/1) loamy sand, gray (5YR 6/1) dry; weak fine subangular blocky structure; very friable; many very fine to very coarse roots; about 3 percent gravel; very strongly acid; abrupt wavy boundary.

Bhs—8 to 10 inches; dark reddish brown (5YR 2.5/2) loamy sand; moderate fine subangular blocky structure; very friable; many very fine to very coarse roots; about 3 percent gravel; extremely acid; abrupt broken boundary.

Bs1—10 to 14 inches; reddish brown (5YR 4/4) loamy sand; moderate fine subangular blocky structure; very friable; many very fine to very coarse roots between ortstein tongues; discontinuous tongues of strongly cemented, dark reddish brown (5YR 3/2) and reddish brown (5YR 4/4) ortstein 6 to 15 inches wide and 3 to 24 inches apart extend to a depth of 38 inches; ortstein occupies 43 percent of the horizon; about 3 percent gravel; very strongly acid; clear irregular boundary.

Bs2—14 to 17 inches; light brown (7.5YR 6/4) sand; weak fine subangular blocky structure; very friable; few very fine and fine roots between ortstein tongues;

discontinuous tongues of strongly cemented, dark reddish brown (5YR 3/4) and reddish brown (5YR 4/4) ortstein 3 to 10 inches wide and 10 to 30 inches apart; ortstein occupies 30 percent of the horizon; about 3 percent gravel; very strongly acid; gradual irregular boundary.

BC—17 to 35 inches; strong brown (7.5YR 5/6) gravelly sand; single grain; loose; about 23 percent gravel; strongly acid; gradual wavy boundary.

2C—35 to 80 inches; light yellowish brown (10YR 6/4), stratified sand and gravelly sand; single grain; loose; about 7 percent gravel, 3 percent cobbles, and 1 percent stones; strongly acid.

Dawson Series

The Dawson series consists of very deep, very poorly drained soils in depressions on ground moraines, lake plains, and outwash plains. These soils formed in woody material 16 to 51 inches thick overlying sandy deposits. Permeability is moderately slow to moderately rapid in the mucky material and rapid in the sandy underlying material. Slopes range from 0 to 2 percent.

Typical pedon of Dawson peat, in an area of Dawson, Greenwood, and Loxley soils; 2,640 feet south and 1,320 feet east of the northwest corner of sec. 13, T. 42 N., R. 16 W., Hiawatha Township, Schoolcraft County, Michigan; USGS Hiawatha, Michigan, topographic quadrangle; lat. 46 degrees 02 minutes 02 seconds N. and long. 86 degrees 15 minutes 20 seconds W., NAD 27:

Oi—0 to 10 inches; peat, reddish brown (5YR 4/3) broken face and rubbed; about 95 percent fiber, 90 percent rubbed; massive; friable; many fine and medium roots; extremely acid; abrupt smooth boundary.

Oa1—10 to 20 inches; muck, very dark gray (5YR 3/1) broken face and rubbed; about 75 percent fiber, 15 percent rubbed; weak thick platy structure; friable; few fine roots; extremely acid; abrupt smooth boundary.

Oa2—20 to 38 inches; muck, black (5YR 2.5/1) broken face and rubbed; about 10 percent fiber, 1 percent rubbed; massive; friable; extremely acid; abrupt smooth boundary.

2C—38 to 80 inches; dark brown (7.5YR 3/3) fine sand; single grain; loose; many coarse prominent pale brown (10YR 6/3) iron depletions with sharp boundaries on faces of peds; very strongly acid.

Deer Park Series

The Deer Park series consists of very deep, excessively drained soils on beach ridges and dunes. These soils formed in sandy deposits. Permeability is rapid. Slopes range from 0 to 60 percent.

Typical pedon of Deer Park sand, 1 to 10 percent slopes; 700 feet east and 900 feet north of the southwest corner of sec. 36, T. 50 N., R. 13 W., Burt Township, Alger County, Michigan; USGS Grand Marais, Michigan, topographic quadrangle; lat. 46 degrees 41 minutes 05.16 seconds N. and long. 85 degrees 52 minutes 09.1 seconds W., NAD 27:

Oa—0 to 2 inches; black (7.5YR 2.5/1), partially decomposed organic material; many very fine to coarse roots; abrupt smooth boundary.

A—2 to 3 inches; very dark gray (7.5YR 3/1) sand, gray (7.5YR 5/1) dry; weak fine granular structure; very friable; many very fine to coarse roots; abrupt wavy boundary.

E—3 to 10 inches; light gray (7.5YR 7/1) sand, pinkish gray (7.5YR 6/2) dry; weak very fine subangular blocky structure; very friable; many very fine to coarse roots; very strongly acid; abrupt wavy boundary.

Bs1—10 to 16 inches; dark yellowish brown (10YR 4/6) sand; weak very fine subangular blocky structure; very friable; common very fine to medium roots; very strongly acid; gradual wavy boundary.

Bs2—16 to 21 inches; strong brown (7.5YR 5/6) sand; weak fine subangular blocky structure; very friable; common very fine to medium roots; very strongly acid; gradual wavy boundary.

BC—21 to 33 inches; light brown (7.5YR 6/4) sand; weak fine subangular blocky structure; very friable; few very fine and fine roots; very strongly acid; gradual wavy boundary.

C—33 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few very fine and fine roots; strongly acid.

Deford Series

The Deford series consists of very deep, poorly drained, rapidly permeable soils on outwash plains and lake plains. These soils formed in sandy glaciofluvial deposits. Slopes range from 0 to 2 percent.

Typical pedon of Deford fine sand; 600 feet south and 200 feet west of the northeast corner of sec. 8, T. 41 N., R. 3 E., Detour Township, Chippewa County, Michigan; USGS Albany Island, Michigan, topographic quadrangle; lat. 45 degrees 58 minutes 09 seconds N. and long. 84 degrees 04 minutes 24 seconds W., NAD 27:

A—0 to 4 inches; very dark gray (10YR 3/1) and dark grayish brown (10YR 4/2) fine sand, gray (10YR 5/1) and light brownish gray (10YR 6/2) dry; weak fine granular structure parting to single grain; very friable; many very fine and fine and few medium roots; neutral; abrupt wavy boundary.

C1—4 to 18 inches; light yellowish brown (10YR 6/4) fine sand; single grain; loose; few medium prominent strong brown (7.5YR 5/6 and 5/8) masses of iron accumulation in root channels; few fine roots; slightly alkaline; gradual wavy boundary.

C2—18 to 32 inches; pale brown (10YR 6/3) fine sand; single grain; loose; few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in root channels; slightly alkaline; gradual wavy boundary.

Cg—32 to 80 inches; grayish brown (10YR 5/2) fine sand; single grain; loose; slightly alkaline.

Dillingham Series

The Dillingham series consists of very deep, well drained, sandy soils on disintegration moraines. These soils formed in sandy glaciofluvial deposits. They have a fragipan. Permeability is moderately rapid in the upper part of the subsoil, slow in the fragipan, and moderately rapid in the substratum. Slopes range from 0 to 70 percent.

Typical pedon of Dillingham loamy sand, in an area of Dillingham-Kalkaska complex, 15 to 35 percent slopes; 1,750 feet east and 2,100 feet north of the southwest corner of sec. 29, T. 48 N., R. 12 W., McMillan Township, Luce County, Michigan; USGS Grand Marais SE, Michigan, topographic quadrangle; lat. 46 degrees 31 minutes 30 seconds N. and long. 85 degrees 50 minutes 20 seconds W., NAD 27:

Oe—0 to 1 inch; partially decomposed forest litter.

E—1 to 8 inches; brown (7.5YR 5/3) loamy sand, pinkish gray (7.5YR 7/2) dry; weak medium subangular blocky structure; friable; common fine to coarse roots; about 1 percent cobbles; extremely acid; abrupt irregular boundary.

Bhs—8 to 11 inches; dark brown (7.5YR 3/3) loamy sand; weak medium subangular blocky structure; friable; many fine to coarse roots; about 1 percent cobbles; extremely acid; abrupt irregular boundary.

Bs—11 to 21 inches; dark brown (7.5YR 3/4) loamy fine sand; weak medium subangular blocky structure; friable; many fine to coarse roots; about 1 percent cobbles; extremely acid; abrupt irregular boundary.

(E/B)x—21 to 31 inches; light reddish brown (5YR 6/3) fine sand, pinkish gray (7.5YR 6/2) dry (E); occupies about 60 percent of the horizon surrounding peds of reddish brown (5YR 5/4) loamy fine sand (Bt); weak thick platy structure; very firm; common fine and medium roots in cracks; few thin clay films on faces of peds; many fine and medium vesicular and tubular pores; about 1 percent gravel and 1 percent cobbles; extremely acid; clear wavy boundary.

C—31 to 80 inches; reddish brown (5YR 5/4) and pinkish gray (5YR 6/2) sand with bands of reddish brown (2.5YR 5/4) loamy fine sand; massive; some weak thick platy fragments; firm; about 1 percent gravel and 1 percent cobbles; extremely acid.

Duck Series

The Duck series consists of very deep, moderately well drained soils on stream terraces. These soils formed in old sandy alluvium deposits. Permeability is moderate in the loamy surface layer and rapid in the substratum. Slopes range from 0 to 6 percent.

Typical pedon of Duck fine sandy loam, in an area of Wurtsmith-Duck-Rubicon complex, 0 to 15 percent slopes; 1,200 feet south and 2,200 feet west of the northeast corner of sec. 36, T. 45 N., R. 16 W., Hiawatha Township, Schoolcraft County, Michigan; USGS Walsh, Michigan, topographic quadrangle; lat. 46 degrees 15 minutes 21 seconds N. and long. 86 degrees 14 minutes 57 seconds W., NAD 27:

Oe—0 to 1 inch; partially decomposed forest litter.

A—1 to 6 inches; dark reddish brown (2.5YR 3/3) fine sandy loam, weak red (2.5YR 4/2) dry; weak medium subangular blocky structure; very friable; common fine and medium roots; very strongly acid; abrupt smooth boundary.

2Bw—6 to 15 inches; dark yellowish brown (10YR 4/6) sand; weak fine subangular blocky structure; very friable; common fine and medium roots; very strongly acid; clear smooth boundary.

2C1—15 to 26 inches; brownish yellow (10YR 6/8) sand; single grain; loose; few fine and medium roots; strongly acid; gradual wavy boundary.

2C2—26 to 80 inches; very pale brown (10YR 7/3) sand; single grain; loose; few fine roots; common fine prominent strong brown (7.5YR 5/6) iron accumulations throughout; about 5 percent gravel; moderately acid.

Ensign Series

The Ensign series consists of shallow, somewhat poorly drained soils on ground moraines and glacial lake benches. These soils formed in till deposits overlying limestone bedrock. Permeability is moderate. Slopes range from 0 to 3 percent.

Typical pedon of Ensign fine sandy loam, 0 to 3 percent slopes, rocky; 1,750 feet east and 2,200 feet north of the southwest corner of sec. 28, T. 43 N., R. 5 W., Moran Township, Mackinac County, Michigan; USGS Kenneth, Michigan, topographic quadrangle; lat. 46 degrees 05 minutes 31 seconds N. and long. 84 degrees 56 minutes 21 seconds W., NAD 27:

Oe—0 to 1 inch; partially decomposed plant material.
A—1 to 5 inches; very dark grayish brown (10YR 3/2) fine sandy loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; many fine to coarse roots; slightly alkaline; clear smooth boundary.
B/A—5 to 8 inches; dark yellowish brown (10YR 4/4) (B) and very dark grayish brown (10YR 3/2) (A) fine sandy loam, light brownish gray (10YR 6/2) dry; moderate medium subangular blocky structure; friable; many fine to coarse roots; few fine distinct yellowish brown (10YR 5/6) iron accumulations; about 2 percent gravel; slightly alkaline; clear smooth boundary.
Bw—8 to 15 inches; dark brown (10YR 4/3) sandy loam; moderate medium subangular blocky structure; friable; common fine to coarse roots; few medium distinct grayish brown (10YR 5/2) and few fine prominent strong brown (7.5YR 5/6) iron accumulations; slightly alkaline; abrupt smooth boundary.
2R—15 inches; fractured limestone bedrock.

Ensley Series

The Ensley series consists of very deep, poorly drained soils in depressions and drainageways on ground moraines. These soils formed in loamy till. Permeability is moderate. Slopes range from 0 to 2 percent.

Typical pedon of Ensley muck; 120 feet west and 200 feet south of the northeast corner of sec. 9, T. 43 N., R. 26 W., Wells Township, Marquette County, Michigan; USGS Northland NE, Michigan, topographic quadrangle; lat. 46 degrees 08 minutes 39 seconds N. and long. 87 degrees 33 minutes 16 seconds W., NAD 27:

Oa—0 to 5 inches; black (10YR 2/1) muck; moderate fine granular structure; very friable; many very fine to coarse roots; neutral; clear wavy boundary.
A—5 to 7 inches; black (10YR 2/1) mucky loam, very dark gray (10YR 3/1) dry; moderate fine granular structure; friable; many very fine to coarse roots; about 3 percent gravel; neutral; clear smooth boundary.
Bw—7 to 19 inches; brown (7.5YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; common very fine to medium roots; common fine prominent light brownish gray (10YR 6/2) iron depletions; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; about 8 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.
C—19 to 80 inches; brown (7.5YR 5/4) gravelly fine sandy loam; massive with weakly expressed thick platiness inherent from deposition; friable; few very fine and fine roots; about 20 percent gravel and 5 percent cobbles; slightly effervescent; slightly alkaline.

Escanaba Series

The Escanaba series consists of very deep, well drained soils on drumlins and ground moraines. These soils formed in a sandy mantle over loamy till. Permeability is moderately rapid in the sandy part of the profile and moderate in the loamy lower part. Slopes range from 1 to 35 percent.

Typical pedon of Escanaba loamy fine sand, 6 to 18 percent slopes; 1,400 feet north and 2,300 feet east of the southwest corner of sec. 31, T. 45 N., R. 27 W., Tilden Township, Marquette County, Michigan; USGS Green Hills, Michigan, topographic quadrangle; lat. 46 degrees 15 minutes 03 seconds N. and long. 87 degrees 43 minutes 59 seconds W., NAD 27:

Oe—0 to 1 inch; partially decomposed forest litter.
A—1 to 3 inches; black (5YR 2.5/1) loamy fine sand, dark gray (5YR 4/1) dry; weak

fine granular structure; very friable; many very fine to coarse roots; about 3 percent gravel; moderately acid; abrupt wavy boundary.

E—3 to 6 inches; reddish gray (5YR 5/2) loamy fine sand, pinkish gray (5YR 6/2) dry; weak fine subangular blocky structure; very friable; many very fine to coarse roots; about 3 percent gravel; moderately acid; abrupt wavy boundary.

Bs1—6 to 12 inches; dark reddish brown (5YR 3/4) loamy fine sand; weak fine subangular blocky structure; very friable; many very fine to medium roots; about 3 percent gravel; moderately acid; clear wavy boundary.

Bs2—12 to 26 inches; brown (7.5YR 4/4) loamy fine sand; weak fine subangular blocky structure; very friable; few fine and medium roots; moderately acid; clear wavy boundary.

E/B—26 to 35 inches; reddish brown (5YR 5/3) loamy fine sand, pinkish gray (5YR 6/2) dry (E); occupies about 60 percent of the horizon and occurs as tongues extending into or completely surrounding isolated remnants of dark reddish brown (5YR 3/4) fine sandy loam (Bt); few distinct discontinuous dark reddish brown (5YR 3/3) clay films on faces of peds; weak medium subangular blocky structure; friable; few fine and medium roots; common very fine vesicular pores; about 3 percent gravel and 2 percent cobbles; neutral; clear irregular boundary.

Bt—35 to 42 inches; dark reddish brown (5YR 3/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; few distinct discontinuous dark reddish brown (5YR 3/3) clay films on faces of peds; common very fine vesicular pores; about 3 percent gravel and 2 percent cobbles; neutral; gradual wavy boundary.

C—42 to 80 inches; reddish brown (5YR 5/4) gravelly fine sandy loam; massive with weakly expressed thin platy structure inherent from deposition; friable; few fine and medium roots; about 14 percent gravel and 6 percent cobbles; slightly effervescent; slightly alkaline.

Finch Series

The Finch series consists of very deep, somewhat poorly drained soils on lake plains and outwash plains. These soils formed in sandy glaciofluvial deposits. They have an ortstein layer in the subsoil. Permeability is moderate or moderately rapid in the ortstein layer and rapid in the rest of the profile. Slopes range from 0 to 3 percent.

Typical pedon of Finch sand, in an area of Spot-Finch complex, 0 to 3 percent slopes; 1,500 feet east of the center of sec. 8, T. 44 N., R. 7 W., Hendricks Township, Mackinac County, Michigan; USGS Rexton, Michigan, topographic quadrangle; lat. 46 degrees 23 minutes 25 seconds N. and long. 85 degrees 12 minutes 02 seconds W., NAD 27:

Oe—0 to 1 inch; partially decomposed leaf litter.

E—1 to 11 inches; pinkish gray (10YR 6/2) sand, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure; very friable; few fine to coarse roots; strongly acid; clear irregular boundary.

Bsm1—11 to 18 inches; dark brown (7.5YR 3/4) and dark reddish brown (7.5YR 3/2) sand; massive; very hard; ortstein occupies 100 percent of the horizon and is strongly cemented; ortstein occurs as a continuous layer and as tongues that extend to a depth of 21 inches; many medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid; clear irregular boundary.

Bsm2—18 to 42 inches; splotchy color pattern of dark brown (7.5YR 4/4 and 3/4) and brown (7.5YR 5/4) sand; massive; very hard; ortstein occupies 90 percent of the horizon and is strongly cemented; ortstein occurs as a nearly continuous layer; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid; gradual wavy boundary.

C—42 to 80 inches; yellowish brown (10YR 5/6) fine sand; single grain; loose; moderately acid.

Frohling Series

The Frohling series consists of very deep, well drained soils on ground moraines and end moraines. These soils formed in loamy till. They have a fragipan. Permeability is moderate in the upper part of the subsoil, very slow in the fragipan, and moderate in the underlying material. Slopes range from 1 to 6 percent.

Typical pedon of Frohling loamy sand, 6 to 15 percent slopes; 800 feet north and 1,700 feet west of the southeast corner of sec. 20, T. 49 N., R. 12 W., McMillan Township, Luce County, Michigan; USGS Grand Marais SE, Michigan, topographic quadrangle; lat. 46 degrees 37 minutes 23 seconds N. and long. 85 degrees 49 minutes 50 seconds W., NAD 27:

Oe—0 to 1 inch; partially decomposed forest litter.

E—1 to 3 inches; reddish gray (5YR 5/2) loamy sand, pinkish gray (7.5YR 6/2) dry; weak fine subangular blocky structure; friable; many fine to coarse roots; about 5 percent cobbles and 2 percent gravel; very strongly acid; abrupt smooth boundary.

Bhs—3 to 7 inches; dark brown (7.5YR 3/3) fine sandy loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; about 5 percent cobbles and 2 percent gravel; extremely acid; clear irregular boundary.

Bs—7 to 19 inches; brown (7.5YR 4/4) fine sandy loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; about 5 percent cobbles and 2 percent gravel; extremely acid; clear wavy boundary.

(B/E)x1—19 to 33 inches; reddish brown (5YR 5/4) sandy loam (Bt); occupies about 70 percent of the horizon surrounded by peds of brown (7.5YR 5/3) loamy sand (E), light brown (7.5YR 6/3) dry; strong medium subangular blocky structure; very firm; common fine vesicular pores; about 3 percent cobbles and 10 percent gravel; extremely acid; clear wavy boundary.

(B/E)x2—33 to 55 inches; reddish brown (5YR 4/4) sandy loam (Bt); occupies about 70 percent of the horizon surrounded by peds of reddish brown (5YR 5/3) loamy sand (E), light reddish brown (5YR 6/3) dry; moderate medium subangular blocky structure; firm; common fine vesicular pores; about 3 percent cobbles and 5 percent gravel; extremely acid; gradual wavy boundary.

C—55 to 80 inches; reddish brown (5YR 4/4) sandy loam; massive; friable; about 3 percent cobbles and 5 percent gravel; extremely acid.

Furlong Series

The Furlong series consists of moderately deep, somewhat excessively drained, rapidly permeable soils on ground moraines and outwash plains. These soils formed in sandy glaciofluvial deposits overlying limestone bedrock. Slopes range from 0 to 6 percent.

Typical pedon of Furlong sand, 0 to 6 percent slopes; 165 feet east and 2,805 feet south of the northwest corner of sec. 34, T. 43 N., R. 4 W., Brevort Township, Mackinac County, Michigan; USGS Ozark SE, Michigan, topographic quadrangle; lat. 46 degrees 04 minutes 41 seconds N. and long. 84 degrees 47 minutes 58 seconds W., NAD 27:

Oe—0 to 1 inch; partially decomposed forest litter.

A—1 to 2 inches; black (10YR 2/1) sand, gray (10YR 5/1) dry; single grain; loose; many very fine and fine roots; very strongly acid; abrupt wavy boundary.

E—2 to 5 inches; pinkish gray (5YR 6/2) sand, pinkish gray (7.5YR 6/2) dry; single grain; loose; many fine to coarse roots; about 5 percent gravel; very strongly acid; abrupt wavy boundary.

Bhs—5 to 7 inches; dark reddish brown (5YR 3/3) sand; single grain; loose; many fine to coarse roots; ortstein occupies 15 percent of the horizon and occurs as weakly cemented chunks; about 5 percent gravel; very strongly acid; abrupt wavy boundary.

Bs1—7 to 13 inches; dark brown (7.5YR 3/4) sand; single grain; loose; common fine and medium roots; ortstein occupies 2 percent of the horizon and occurs as strongly cemented chunks; about 5 percent gravel; very strongly acid; abrupt wavy boundary.

Bs2—13 to 19 inches; reddish brown (5YR 4/3) sand; single grain; loose; few fine roots; ortstein occupies 2 percent of the horizon and occurs as strongly cemented chunks; moderately acid; abrupt wavy boundary.

C—19 to 22 inches; brown (7.5YR 5/4) sand; single grain; loose; very few fine roots; about 5 percent gravel; slightly alkaline; abrupt smooth boundary.

2R—22 inches; fractured limestone bedrock.

Garlic Series

The Garlic series consists of very deep, well drained, rapidly permeable soils on pitted outwash plains and disintegration moraines. These soils formed in sandy glaciofluvial deposits. Slopes range from 0 to 70 percent.

Typical pedon of Garlic sand, 0 to 6 percent slopes; 2,600 feet south of the northeast corner of sec. 13, T. 49 N., R. 12 W., Burt Township, Alger County, Michigan; USGS Grand Marais NE, Michigan, topographic quadrangle; lat. 46 degrees 38 minutes 34 seconds N. and long. 85 degrees 51 minutes 52 seconds W., NAD 27:

Oe—0 to 2 inches; partially decomposed forest litter.

E—2 to 9 inches; brown (7.5YR 5/2) sand, pinkish gray (7.5YR 6/2) dry; weak fine subangular blocky structure; friable; many fine to coarse roots; extremely acid; clear wavy boundary.

Bhs—9 to 11 inches; dark reddish brown (5YR 3/2) sand; weak medium subangular blocky structure; friable; many fine to coarse roots; extremely acid; clear irregular boundary.

Bs—11 to 20 inches; yellowish red (5YR 4/6) sand; weak medium subangular blocky structure; friable; few fine to coarse roots between ortstein columns; dark reddish brown (5YR 3/2 and 3/4) and yellowish red (5YR 4/6) ortstein occupies 62 percent of the horizon and occurs as columns that extend into the BC horizon; very strongly acid; clear irregular boundary.

BC—20 to 29 inches; yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) sand; weak fine subangular blocky structure; friable; few fine roots; strongly acid; gradual irregular boundary.

C1—29 to 47 inches; light yellowish brown (10YR 6/4) fine sand; few thin brown (10YR 5/3) color bands; single grain; loose; very strongly acid; clear wavy boundary.

C2—47 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; 1 percent gravel; very strongly acid.

Gilchrist Series

The Gilchrist series consists of very deep, moderately well drained soils on ground moraines and drumlins. These soils formed in sandy glaciofluvial deposits overlying loamy till. Permeability is rapid in the sandy material and very slow in the dense, loamy material. Slopes range from 0 to 6 percent.

Typical pedon of Gilchrist sand, 0 to 6 percent slopes; 1,782 feet north and 396 feet east of the southwest corner of sec. 28, T. 41 N., R. 17 W., Inwood Township, Schoolcraft County, Michigan; USGS Cooks, Michigan, topographic quadrangle; lat. 45 degrees 54 minutes 57.3 seconds N. and long. 86 degrees 26 minutes 49.34 seconds W., NAD 27:

Oe—0 to 3 inches; partially decomposed forest litter.

E—3 to 7 inches; pinkish gray (7.5YR 6/2) sand, light gray (7.5YR 7/1) dry; weak medium subangular blocky structure; very friable; common fine to coarse roots; very strongly acid; clear irregular boundary.

Bhs—7 to 9 inches; dark reddish brown (5YR 3/2) loamy sand; weak medium subangular blocky structure; very friable; few coarse and common fine and medium roots; about 2 percent gravel; moderately acid; clear broken boundary.

Bs1—9 to 19 inches; dark brown (7.5YR 3/4) loamy sand; weak medium subangular blocky structure; very friable; common fine and medium roots between ortstein columns; columns of moderately cemented, dark reddish brown (5YR 2/2) ortstein 2 to 6 inches wide extend into the Bs2 horizon; ortstein occupies 10 percent of the horizon; about 3 percent gravel; moderately acid; clear wavy boundary.

Bs2—19 to 26 inches; strong brown (7.5YR 4/6) sand; weak fine subangular blocky structure; very friable; few fine roots; about 2 percent gravel; slightly alkaline; clear wavy boundary.

2Cd—26 to 80 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy loam; strong thick platy structure; very firm; about 65 percent gravel; about 1 percent cobbles; strong effervescence; moderately alkaline.

Graveraet Series

The Graveraet series consists of very deep, moderately well drained soils on drumlins and ground moraines. These soils formed in loamy till. Permeability is moderate in the upper part of the solum, very slow in the lower part of the solum, and moderate in the substratum. Slopes range from 1 to 15 percent.

Typical pedon of Graveraet fine sandy loam, 1 to 6 percent slopes; 145 feet north and 2,150 feet east of the southwest corner of sec. 27, T. 44 N., R. 12 W., Portage Township, Mackinac County, Michigan; USGS Curtis West, Michigan, topographic quadrangle; lat. 46 degrees 10 minutes 25 seconds N. and long. 85 degrees 47 minutes 41 seconds W., NAD 27:

Oi—0 to 1 inch; slightly decomposed forest litter.

A—1 to 4 inches; very dark gray (10YR 3/1) fine sandy loam, gray (10YR 5/1) dry; moderate coarse granular structure; friable; many fine to coarse roots; strongly acid; abrupt smooth boundary.

E—4 to 7 inches; brown (7.5YR 5/2) fine sandy loam, pinkish gray (7.5YR 6/2) dry; moderate medium subangular blocky structure; friable; common fine to coarse roots; strongly acid; abrupt wavy boundary.

Bhs—7 to 10 inches; dark reddish brown (5YR 3/2) fine sandy loam; weak fine subangular blocky structure; friable; common fine to coarse roots; strongly acid; clear wavy boundary.

Bs—10 to 17 inches; dark brown (7.5YR 4/4) fine sandy loam; moderate thick platy structure; firm; few fine to coarse roots; few fine vesicular pores; few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid; abrupt wavy boundary.

(E/B)x—17 to 33 inches; brown (7.5YR 5/3) loamy sand (E), pinkish gray (7.5YR 6/2) dry; occupies about 80 percent of the horizon surrounding peds of reddish brown (5YR 5/4) loam (Bt); moderate thick platy structure; firm; few fine roots; few fine vesicular pores; common faint reddish brown (5YR 5/4) clay films on faces of

peds; few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; about 2 percent gravel; moderately acid; gradual wavy boundary.

B/E—33 to 48 inches; reddish brown (5YR 5/4) sandy clay loam (Bt); common faint reddish brown (5YR 4/4) clay films on faces of peds; occupies about 80 percent of the horizon surrounded by tongues of brown (7.5YR 5/3) loamy sand (E), pinkish gray (7.5YR 6/2) dry; moderate thick platy structure; firm; few fine roots; about 2 percent gravel; moderately acid; gradual wavy boundary.

Bt—48 to 68 inches; reddish brown (5YR 5/4) sandy clay loam; moderate medium subangular blocky structure; friable; few faint reddish brown (5YR 4/4) clay films on faces of peds; about 5 percent gravel; neutral; gradual wavy boundary.

C—68 to 80 inches; reddish brown (5YR 5/4) sandy loam; massive; friable; about 10 percent gravel; slight effervescence; slightly alkaline.

Greenwood Series

The Greenwood series consists of very deep, very poorly drained soils in depressions on outwash plains and moraines. These soils formed in herbaceous material more than 51 inches thick. Permeability is moderate or moderately rapid. Slopes are 0 to 1 percent.

Typical pedon of Greenwood mucky peat; 800 feet north and 1,700 feet west of the southeast corner of sec. 13, T. 45 N., R. 20 W., Munising Township, Alger County, Michigan; USGS Juniper, Michigan, topographic quadrangle; lat. 46 degrees 17 minutes 26.25 seconds N. and long. 86 degrees 44 minutes 73 seconds W., NAD 27:

Oe1—0 to 18 inches; mucky peat, black (10YR 2/1) broken face and rubbed; about 60 percent fiber, 50 percent rubbed; massive; nonsticky; common very fine to medium roots in the upper 4 inches; very strongly acid; clear smooth boundary.

Oe2—18 to 65 inches; mucky peat, black (10YR 2/1) broken face and rubbed; about 70 percent fiber, 60 percent rubbed; massive; nonsticky; extremely acid; gradual smooth boundary.

Oa—65 to 80 inches; muck, black (7.5YR 2.5/1) broken face and very dark brown (7.5YR 2.5/2) rubbed; 30 percent fiber, 5 percent rubbed; massive; nonsticky; very strongly acid.

Greylock Series

The Greylock series consists of very deep, well drained, moderately permeable soils on ground moraines. These soils formed in loamy till. Slopes range from 1 to 60 percent.

Typical pedon of Greylock fine sandy loam, 1 to 6 percent slopes, in an area where the slope is 6 percent; 100 feet west and 700 feet north of the southeast corner of sec. 10, T. 43 N., R. 4 W., Brevort Township, Mackinac County, Michigan; lat. 46 degrees 07 minutes 55 seconds N. and long. 84 degrees 46 minutes 47 seconds W., NAD 27:

Oe—0 to 1 inch; partially decomposed forest litter.

A—1 to 6 inches; black (10YR 2/1) fine sandy loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; many fine to coarse roots; about 2 percent gravel and 1 percent cobbles; moderately acid; clear smooth boundary.

E—6 to 7 inches; reddish gray (5YR 5/2) sandy loam, gray (10YR 6/1) dry; moderate medium subangular blocky structure; friable; many fine to coarse roots; about 2 percent gravel and 1 percent cobbles; moderately acid; abrupt wavy boundary.

Bhs—7 to 9 inches; dark reddish brown (5YR 3/2) fine sandy loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; about 2 percent gravel and 1 percent cobbles; moderately acid; clear wavy boundary.

Bs—9 to 19 inches; brown (7.5YR 4/4) sandy loam; moderate medium subangular blocky structure; friable; common fine to coarse roots; about 5 percent gravel and 1 percent cobbles; moderately acid; clear wavy boundary.

E/B—19 to 26 inches; brown (7.5YR 5/2) loamy sand (E), light brownish gray (10YR 6/2) dry; occupies about 70 percent of the horizon surrounding peds of reddish brown (5YR 4/3) sandy loam (Bt); moderate medium subangular blocky structure; firm; few medium and coarse roots; about 5 percent gravel; slightly acid; gradual wavy boundary.

B/E—26 to 34 inches; reddish brown (5YR 4/3) sandy loam (Bt); few fine reddish brown (5YR 4/3) clay films on faces of peds; occupies about 85 percent of the horizon surrounding tongues of reddish brown (5YR 5/3) loamy sand (E), pinkish gray (7.5YR 6/2) dry; moderate medium subangular blocky structure; friable; few fine vesicular pores; few fine roots; about 5 percent gravel; neutral; gradual wavy boundary.

C—34 to 80 inches; brown (7.5YR 5/3) sandy loam; massive; friable; about 10 percent gravel; slightly effervescent; slightly alkaline.

Growton Series

The Growton series consists of very deep, somewhat poorly drained, moderately permeable soils on ground moraines. These soils formed in loamy till. Slopes range from 0 to 3 percent.

Typical pedon of Growton fine sandy loam, 0 to 3 percent slopes; 250 feet south and 1,200 feet west of the northeast corner of sec. 9, T. 43 N., R. 26 W., Wells Township, Marquette County, Michigan; USGS Northland NE, Michigan, topographic quadrangle; lat. 46 degrees 08 minutes 37 seconds N. and long. 87 degrees 33 minutes 28 seconds W., NAD 27:

A—0 to 6 inches; black (10YR 2/1) fine sandy loam, dark gray (10YR 4/1) dry; moderate fine granular structure; friable; many very fine to coarse roots; about 4 percent gravel; neutral; clear wavy boundary.

E—6 to 18 inches; brown (7.5YR 5/4) fine sandy loam, pink (7.5YR 7/4) dry; weak fine subangular blocky structure; friable; many very fine to coarse roots; common fine prominent light gray (10YR 7/2) iron depletions; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; about 8 percent gravel and 2 percent cobbles; neutral; gradual wavy boundary.

Bt—18 to 25 inches; brown (7.5YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; few very fine and fine roots; common distinct reddish brown (5YR 4/4) clay films on faces of peds; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; about 8 percent gravel and 2 percent cobbles; slightly alkaline; clear wavy boundary.

2C—25 to 80 inches; brown (7.5YR 5/4) gravelly fine sandy loam; massive with weakly expressed thick platiness inherent from deposition; friable; few very fine and fine roots; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; about 15 percent gravel and 4 percent cobbles; slightly effervescent; slightly alkaline.

Guardlake Series

The Guardlake series consists of very deep, well drained soils on outwash plains and eskers. These soils formed in shallow, loamy glaciofluvial deposits underlain by sandy and gravelly glaciofluvial deposits. Permeability is moderate in the loamy part and very rapid in the substratum. Slopes range from 0 to 35 percent.

Typical pedon of Guardlake fine sandy loam, 0 to 6 percent slopes; 1,540 feet north and 340 feet west of the southeast corner of sec. 20, T. 43 N., R. 3 W., St. Ignace Township, Mackinac County, Michigan; USGS Hog Island Point, Michigan, topographic quadrangle; lat. 46 degrees 06 minutes 20 seconds N. and long. 85 degrees 19 minutes 21 seconds W., NAD 27:

Oi—0 to 1 inch; slightly decomposed forest litter.

A—1 to 2 inches; black (10YR 2/1) fine sandy loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; many fine roots; about 2 percent gravel; strongly acid; abrupt wavy boundary.

E—2 to 4 inches; brown (7.5YR 5/2) fine sandy loam, pinkish gray (7.5YR 7/2) dry; weak medium and coarse granular structure; friable; many fine and common medium roots; about 5 percent gravel; strongly acid; abrupt wavy boundary.

Bhs—4 to 13 inches; dark reddish brown (5YR 3/3) fine sandy loam; weak medium granular and weak fine subangular blocky structure; very friable; common medium roots between columns of ortstein; columns of weakly cemented ortstein extend into this horizon; ortstein occupies about 30 percent of the horizon; about 5 percent gravel and 1 percent cobbles; moderately acid; abrupt irregular boundary.

2C—13 to 80 inches; light yellowish brown (10YR 6/4) and yellow (10YR 7/6) very gravelly sand; single grain; loose; few fine roots; about 20 percent gravel and 20 percent cobbles; slight effervescence; moderately alkaline.

Gulliver Series

The Gulliver series consists of deep, moderately well drained, moderately permeable soils on ground moraines. These soils formed in loamy glaciofluvial deposits over loamy till underlain by limestone bedrock. Slopes range from 1 to 6 percent.

Typical pedon of Gulliver silt loam, in an area of Graveraet-Gulliver complex, 1 to 6 percent slopes; 1,720 feet south and 2,640 feet east of the northwest corner of sec. 9, T. 42 N., R. 13 W., Mueller Township, Schoolcraft County, Michigan; USGS Blaney Park, Michigan, topographic quadrangle; lat. 46 degrees 03 minutes 05 seconds N. and long. 85 degrees 56 minutes 14 seconds W., NAD 27:

A—0 to 4 inches; black (10YR 2/1) silt loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; many fine and common medium and coarse roots; strongly acid; abrupt wavy boundary.

E—4 to 9 inches; brown (7.5YR 5/2) silt loam, light gray (7.5YR 7/1) dry; weak medium subangular blocky structure parting to weak coarse granular; friable; common fine and few medium and coarse roots; very strongly acid; clear wavy boundary.

Bhs—9 to 12 inches; very dark gray (5YR 3/1) silt; weak medium subangular blocky structure; friable; many fine and few medium and coarse roots; very strongly acid; clear wavy boundary.

2Bs—12 to 19 inches; dark brown (7.5YR 3/4) sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; strongly acid; abrupt wavy boundary.

2E/B—19 to 24 inches; brown (7.5YR 5/3) loamy fine sand, light gray (7.5YR 7/1) dry (E); occupies about 80 percent of the horizon surrounding reddish brown (5YR 4/3) sandy loam (Bt); moderate medium subangular blocky structure; firm; few fine roots; many fine vesicular pores; about 3 percent fine and medium gravel; slightly acid; clear irregular boundary.

2Bt—24 to 30 inches; reddish brown (5YR 4/3) sandy loam; moderate medium subangular blocky structure; firm; few fine roots; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation on faces of peds; many fine

vesicular pores; few faint dark reddish brown (5YR 3/3) clay films on faces of peds; about 3 percent fine and medium gravel; neutral; clear wavy boundary.

2C1—30 to 40 inches; brown (7.5YR 5/3) sandy loam; weak medium platy structure inherent from deposition; firm; few medium distinct yellowish red (5YR 5/8) masses of iron accumulation throughout; about 3 percent cobbles; about 5 percent medium and fine gravel; moderately alkaline; violent effervescence; clear wavy boundary.

2C2—40 to 58 inches; brown (7.5YR 5/3) gravelly fine sandy loam; moderate medium platy structure inherent from deposition; firm; common medium distinct strong brown (7.5YR 4/6) masses of iron accumulation and common coarse prominent light brown (7.5YR 6/3) iron depletions throughout; about 3 percent cobbles, 5 percent coarse gravel, and 8 percent medium and fine gravel; moderately alkaline; violent effervescence; abrupt wavy boundary.

3R—58 inches; hard, fractured limestone bedrock.

Halfaday Series

The Halfaday series consists of very deep, moderately well drained, sandy soils on outwash plains and moraines. These soils formed in sandy glaciofluvial deposits. Permeability is rapid. Slopes range from 0 to 4 percent.

Typical pedon of Halfaday sand, 0 to 3 percent slopes; 800 feet west and 300 feet south of the northeast corner of sec. 4, T. 46 N., R. 17 W., Munising Township, Alger County, Michigan; USGS Melstrand, Michigan, topographic quadrangle; lat. 46 degrees 25 minutes 05 seconds N. and long. 86 degrees 25 minutes 55 seconds W., NAD 27:

Oa—0 to 2 inches; well decomposed forest litter; weak very fine subangular blocky structure; very friable; many very fine to coarse roots; very strongly acid; abrupt wavy boundary.

E—2 to 9 inches; pinkish gray (7.5YR 6/2) sand, light gray (7.5YR 7/1) dry; weak very fine subangular blocky structure; very friable; common very fine to coarse roots; about 2 percent gravel; very strongly acid; abrupt irregular boundary.

Bhs—9 to 10 inches; dark brown (7.5YR 3/3) sand; weak fine subangular blocky structure; very friable; many very fine to coarse roots; about 2 percent gravel; extremely acid; abrupt irregular boundary.

Bs1—10 to 20 inches; dark brown (7.5YR 3/4) sand; weak fine subangular blocky structure; friable; common very fine to medium roots; discontinuous vertical tongues of dark brown (7.5YR 3/3) and strong brown (7.5YR 4/6), strongly cemented ortstein occupy 20 percent (8 of 40 inches) of the horizon and extend into the Bs2 horizon to a depth of 50 inches; tongues are 2 to 5 inches wide and 6 to 24 inches apart; about 2 percent gravel; very strongly acid; gradual irregular boundary.

Bs2—20 to 35 inches; brown (7.5YR 4/4) sand; weak very fine subangular blocky structure; very friable; few very fine to medium roots; discontinuous vertical tongues of dark brown (7.5YR 3/3) and strong brown (7.5YR 4/6), strongly cemented ortstein occupy 12 percent (5 of 40 inches) of the horizon; tongues are 2 to 3 inches wide and 10 to 30 inches apart; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation at a depth of 27 to 35 inches; about 4 percent gravel; very strongly acid; gradual irregular boundary.

BC—35 to 50 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; about 4 percent gravel; strongly acid; gradual wavy boundary.

C—50 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; about 4 percent gravel; slightly acid.

Heinz Series

The Heinz series consists of very deep, moderately well drained soils on outwash plains and ground moraines. These soils formed in loamy glaciofluvial deposits overlying sandy and gravelly glacial outwash. Permeability is moderately rapid in the loamy part of the profile and very rapid in the substratum. Slopes range from 0 to 6 percent.

Typical pedon of Heinz sandy loam, 0 to 6 percent slopes; 1,800 feet east and 50 feet south of the northwest corner of sec. 30, T. 43 N., R. 12 W., Newton Township, Mackinac County, Michigan; USGS Milakokia Lake, Michigan, topographic quadrangle; lat. 46 degrees 06 minutes 04 seconds N. and long. 85 degrees 51 minutes 27 seconds W., NAD 27:

Oa—0 to 1 inch; well decomposed forest litter.

A—1 to 5 inches; black (10YR 2/1) sandy loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; many fine to coarse roots; about 2 percent gravel; strongly acid; clear smooth boundary.

E—5 to 6 inches; pinkish gray (7.5YR 6/2) sandy loam, pinkish gray (7.5YR 7/2) dry; weak medium granular structure; friable; many fine to coarse roots; about 2 percent gravel; strongly acid; abrupt broken boundary.

Bhs—6 to 8 inches; dark reddish brown (5YR 3/2) sandy loam; weak fine subangular blocky structure; friable; many fine to coarse roots; about 2 percent gravel; moderately acid; clear wavy boundary.

Bs1—8 to 18 inches; dark brown (7.5YR 3/4) loamy sand; weak fine subangular blocky structure; very friable; many fine to coarse roots; about 2 percent gravel; moderately acid; clear wavy boundary.

Bs2—18 to 25 inches; dark brown (7.5YR 4/4) sand; weak fine subangular blocky structure; very friable; common fine to medium roots; about 10 percent gravel; slightly acid; clear wavy boundary.

2C1—25 to 31 inches; brown (10YR 5/3) gravelly sand; single grain; loose; about 18 percent gravel and 2 percent cobbles; slight effervescence; slightly alkaline; clear wavy boundary.

2C2—31 to 80 inches; pale brown (10YR 6/3) very gravelly sand; single grain; loose; about 40 percent gravel and 2 percent cobbles; strong effervescence; slightly alkaline.

Hendrie Series

The Hendrie series consists of very deep, poorly drained, moderately slowly permeable soils on lake plains. These soils formed in loamy glaciolacustrine deposits. Slopes range from 0 to 2 percent.

Typical pedon of Hendrie mucky peat; 275 feet east and 1,400 feet north of the southwest corner of sec. 9, T. 46 N., R. 8 W., McMillan Township, Luce County, Michigan; USGS Gimlet Creek, Michigan, topographic quadrangle; lat. 46 degrees 23 minutes 38 seconds N. and long. 85 degrees 19 minutes 17 seconds W., NAD 27:

Oe—0 to 4 inches; dark brown (7.5YR 3/2) mucky peat; massive; friable; many fine to coarse roots; very strongly acid; abrupt wavy boundary.

Eg—4 to 7 inches; grayish brown (2.5Y 5/2) silt loam, light gray (2.5Y 7/2) dry; moderate fine subangular blocky structure; friable; few fine to coarse roots; few medium distinct dark gray (10YR 4/1) iron depletions and few medium prominent dark yellowish brown (10YR 4/6) masses of iron accumulation; strongly acid; abrupt wavy boundary.

Bw—7 to 16 inches; brown (7.5YR 5/4) silt loam; moderate medium platy structure; friable; few fine to coarse roots; common medium distinct strong brown (7.5YR

4/6) and yellowish brown (10YR 5/6) masses of iron accumulation; neutral; clear wavy boundary.

C1—16 to 48 inches; pinkish gray (7.5YR 6/2) silt loam; massive; firm; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; strong effervescence; moderately alkaline; gradual wavy boundary.

C2—48 to 80 inches; light brownish gray (10YR 6/2) silt loam; massive; some weak thin platy structure inherent from deposition; firm; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; violent effervescence; moderately alkaline.

Hiawatha Series

The Hiawatha series consists of very deep, well drained soils on stream terraces. These soils formed in old sandy alluvium deposits. Permeability is moderate in the loamy surface layer and rapid in the substratum. Slopes range from 0 to 6 percent.

Typical pedon of Hiawatha fine sandy loam, 0 to 6 percent slopes; 1,400 feet north and 600 feet east of the southwest corner of sec. 23, T. 43 N., R. 15 W., Manistique Township, Schoolcraft County, Michigan; USGS Smith Lake, Michigan, topographic quadrangle; lat. 46 degrees 06 minutes 14 seconds N. and long. 86 degrees 09 minutes 16 seconds W., NAD 27:

Oe—0 to 2 inches; partially decomposed forest litter.

A—2 to 6 inches; dusky red (2.5YR 3/2) fine sandy loam, weak red (2.5YR 4/2) dry; weak medium subangular blocky structure; very friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.

C1—6 to 15 inches; brownish yellow (10YR 6/6) fine sand; weak thick platy structure inherent from deposition; very friable; common fine to coarse roots; very strongly acid; clear wavy boundary.

C2—15 to 25 inches; yellowish brown (10YR 5/4) fine sand; weak thick platy structure inherent from deposition; very friable; few fine roots; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation throughout (relict redoximorphic features); very strongly acid; clear wavy boundary.

C3—25 to 55 inches; pale brown (10YR 6/3) sand; weak thick platy structure inherent from deposition; few medium distinct strong brown (7.5YR 5/6) masses of iron accumulation throughout (relict redoximorphic features); few thin strata ($^1/_{16}$ to $^1/_2$ inch thick) of red (2.5YR 4/6) and black (10YR 2/1) organic stains occur below a depth of 45 inches; strongly acid; gradual wavy boundary.

C4—55 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; few medium distinct strong brown (7.5YR 4/6) masses of iron accumulation; strongly acid.

Ingalls Series

The Ingalls series consists of very deep, somewhat poorly drained soils on lake plains and outwash plains. These soils formed in sandy glaciofluvial deposits overlying stratified glaciolacustrine deposits. Permeability is rapid in the solum and moderately slow in the substratum. Slopes range from 0 to 3 percent.

Typical pedon of Ingalls loamy sand, 0 to 3 percent slopes; 1,400 feet north and 650 feet east of the southwest corner of sec. 36, T. 47 N., R. 3 W., Bay Mills Township, Chippewa County, Michigan; USGS Dollar Settlement, Michigan, topographic quadrangle; lat. 46 degrees 25 minutes 21 seconds N. and long. 84 degrees 37 minutes 57 seconds W., NAD 27:

Oi—0 to 1 inch; slightly decomposed forest litter.

Oa—1 to 3 inches; well decomposed forest litter.

E—3 to 10 inches; brown (10YR 5/3) loamy sand; weak medium granular structure; very friable; many fine and medium roots; strongly acid; abrupt irregular boundary.

Bs1—10 to 17 inches; dark brown (7.5YR 3/4) loamy sand; strong medium subangular blocky structure; friable; few fine roots between ortstein columns; columns of weakly cemented ortstein occur in this horizon; few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation throughout; moderately acid; gradual broken boundary.

Bs2—17 to 23 inches; brown (7.5YR 4/4) sand; weak medium subangular blocky structure; very friable; few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation throughout; strongly acid; abrupt broken boundary.

BC—23 to 43 inches; brown (7.5YR 5/4) loamy fine sand; massive; very friable; few fine distinct (7.5YR 5/6) masses of iron accumulation throughout; strongly acid; diffuse wavy boundary.

2C—43 to 80 inches; stratified dark yellowish brown (10YR 4/4) and brown (10YR 5/3) loamy fine sand and silt loam; massive; very friable; few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation throughout; neutral.

Iosco Series

The Iosco series consists of very deep, somewhat poorly drained soils on ground moraines and outwash plains. These soils formed in sandy glaciofluvial deposits overlying loamy glacial till. Permeability is rapid in the upper sandy part and moderate in the loamy substratum. Slopes range from 0 to 3 percent.

Typical pedon of Iosco sand, 0 to 3 percent slopes; 660 feet south and 125 feet west of the northeast corner of sec. 27, T. 42 N., R. 5 W., Brevort Township, Mackinac County, Michigan; USGS Kenneth, Michigan, topographic quadrangle; lat. 46 degrees 00 minutes 44 seconds N. and long. 84 degrees 54 minutes 20 seconds W., NAD 27:

Oe—0 to 2 inches; partially decomposed leaf litter.

Oa—2 to 6 inches; black (N 2/), well decomposed leaf litter.

E1—6 to 9 inches; dark brownish gray (10YR 4/2) sand, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; few fine and medium roots; very few distinct yellowish brown (10YR 5/4) iron accumulations; strongly acid; clear wavy boundary.

E2—9 to 11 inches; brown (10YR 4/3) sand, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; few fine and medium roots; very few fine faint brown (10YR 5/3) iron accumulations; moderately acid; clear wavy boundary.

Bs1—11 to 25 inches; dark brown (7.5YR 4/4) loamy sand; weak fine subangular blocky structure; friable; ortstein makes up 35 percent of horizon and occurs as weakly cemented chunks; few fine roots; moderately acid; gradual wavy boundary.

Bs2—25 to 27 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few fine roots; few fine distinct dark yellowish brown (10YR 4/6) iron accumulations; slightly acid; abrupt wavy boundary.

2Bt—27 to 38 inches; reddish brown (5YR 3/3) loam; moderate medium subangular blocky structure; friable; thin clay films on faces of peds; about 10 percent gravel and less than 5 percent cobbles; few fine distinct reddish yellow (5YR 6/6) iron accumulations; slightly alkaline; gradual wavy boundary.

2C—38 to 60 inches; light brown (7.5YR 6/4) loam; massive; friable; about 3 percent gravel and 3 percent cobbles; slightly effervescent; moderately alkaline.

Islandlake Series

The Islandlake series consists of very deep, somewhat excessively drained, rapidly permeable soils on ground moraines, disintegration moraines, and outwash plains.

These soils formed in sandy glaciofluvial deposits. Slopes range from 0 to 60 percent.

Typical pedon of Islandlake sand, 0 to 6 percent slopes; 1,914 feet south and 2,310 feet west of the northeast corner of sec. 8, T. 43 N., R. 20 W., Masonville Township, Delta County, Michigan; USGS Lake Stella, Michigan, topographic quadrangle; lat. 46 degrees 08 minutes 01 second N. and long. 86 degrees 49 minutes 39 seconds W., NAD 27:

Oi—0 to 1 inch; slightly decomposed forest litter.

A—1 to 2 inches; black (7.5YR 2.5/1) sand, very dark gray (10YR 3/1) dry; weak very fine granular structure; very friable; many very coarse to very fine roots; about 1 percent fine gravel; very strongly acid; abrupt wavy boundary.

E—2 to 8 inches; brown (7.5YR 5/3) sand, gray (10YR 6/1) dry; weak very fine subangular blocky structure; very friable; many very coarse to very fine roots; about 1 percent fine gravel; extremely acid; clear wavy boundary.

Bhs—8 to 9 inches; dark reddish brown (5YR 2.5/2) sand; weak medium subangular blocky structure; very friable; many very coarse to very fine roots between columns of ortstein; columns of moderately cemented, dark reddish brown (5YR 3/2) and brown (7.5YR 5/4) ortstein 2 to 7 inches wide extend through this horizon into the Bs horizon; ortstein columns are 6 to 20 inches apart; ortstein occupies 22 percent of the horizon; about 1 percent fine gravel; very strongly acid; abrupt broken boundary.

Bs1—9 to 26 inches; strong brown (7.5YR 4/6) sand; weak fine subangular blocky structure; very friable; many fine to medium and few coarse roots between ortstein columns; columns of moderately cemented, dark reddish brown (5YR 3/2 and 3/3) and brown (7.5YR 5/4) ortstein 2 to 7 inches wide extend through this horizon into the Bs2 horizon; ortstein columns are 6 to 20 inches apart; ortstein occupies 22 percent of this horizon; about 1 percent fine gravel; strongly acid; clear wavy boundary.

Bs2—26 to 41 inches; brown (7.5YR 5/4) sand; weak fine subangular blocky structure; very friable; few very fine and fine roots between ortstein columns; columns of moderately cemented, dark reddish brown (5YR 3/2 and 3/3) and brown (7.5YR 5/4) ortstein 1 to 3 inches wide extend into this horizon from the Bs1 horizon; ortstein columns are 8 to 30 inches apart; ortstein occupies 5 percent of this horizon; about 1 percent fine gravel; strongly acid; abrupt wavy boundary.

E and Bt—41 to 80 inches; brown (7.5YR 5/3) sand (E´); single grain; loose; lamellae of reddish brown (5YR 4/4) loamy sand (Bt); weak fine granular structure; very friable; lamellae are 1/8 to 1/4 inch thick; few fine roots; about 1 percent fine gravel; strongly acid.

Kalkaska Series

The Kalkaska series consists of very deep, somewhat excessively drained, rapidly permeable soils on ground moraines, disintegration moraines, lake plains, and outwash plains. These soils formed in sandy glaciofluvial deposits. Slopes range from 0 to 60 percent.

Typical pedon of Kalkaska sand, 0 to 6 percent slopes; 1,400 feet west and 425 feet south of the northeast corner of sec. 31, T. 43 N., R. 15 W., Manistique Township, Schoolcraft County, Michigan; USGS Smith Lake, Michigan, topographic quadrangle; lat. 46 degrees 05 minutes 02 seconds N. and long. 86 degrees 13 minutes 27 seconds W., NAD 27:

A—0 to 2 inches; black (10YR 2/1) sand, very dark gray (10YR 3/1) dry; weak medium granular structure; very friable; common fine and medium and few coarse roots; very strongly acid; abrupt wavy boundary.

E—2 to 6 inches; brown (7.5YR 5/2) sand, gray (10YR 6/1) dry; weak medium subangular blocky structure; very friable; common fine to coarse roots; very strongly acid; clear irregular boundary.

Bhs—6 to 8 inches; dark reddish brown (5YR 3/3) sand; weak medium subangular blocky structure; very friable; common fine and medium and few coarse roots between columns of ortstein; columns of strongly cemented, dark reddish brown (5YR 3/2) and brown (7.5YR 5/4) ortstein 2 to 6 inches wide extend through this horizon into the Bs horizon; ortstein columns are 6 to 20 inches apart; ortstein occupies 20 percent of the horizon; very strongly acid; clear irregular boundary.

Bs—8 to 16 inches; brown (7.5YR 4/4) sand; weak fine subangular blocky structure; very friable; few fine and medium roots between ortstein columns; columns of moderately strongly cemented, dark reddish brown (5YR 3/2 and 3/3) and brown (7.5YR 5/4) ortstein 1 to 3 inches wide extend through this horizon into the BC horizon; ortstein columns are 6 to 20 inches apart; ortstein occupies 10 percent of this horizon; strongly acid; clear wavy boundary.

BC—16 to 26 inches; strong brown (7.5YR 5/6) sand; single grain; loose; few fine roots between ortstein columns; columns of moderately strongly cemented, dark reddish brown (5YR 3/2 and 3/3) and brown (7.5YR 5/4) ortstein 1 to 3 inches wide extend into this horizon from the Bs horizon; ortstein columns are 20 to 30 inches apart; ortstein occupies 5 percent of this horizon; strongly acid; gradual wavy boundary.

C1—26 to 42 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few fine roots; moderately acid; gradual wavy boundary.

C2—42 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; moderately acid.

Karlin Series

The Karlin series consists of very deep, somewhat excessively drained soils on outwash plains and stream terraces. These soils formed in sandy glaciofluvial deposits. Permeability is moderately rapid in the upper part of the profile and rapid in the lower part. Slopes range from 0 to 6 percent.

Typical pedon of Karlin loamy fine sand, 0 to 6 percent slopes; 2,178 feet north and 99 feet west of the southeast corner of sec. 13, T. 41 N., R. 17 W., Inwood Township, Schoolcraft County, Michigan; USGS Manistique West, Michigan, topographic quadrangle; lat. 45 degrees 56 minutes 45 seconds N. and long. 86 degrees 21 minutes 54 seconds W., NAD 27:

A—0 to 3 inches; black (10YR 2/1) loamy fine sand, very dark gray (10YR 3/1) dry; weak medium granular structure; very friable; many fine to coarse roots; very strongly acid; abrupt wavy boundary.

E—3 to 7 inches; light brownish gray (10YR 6/2) loamy fine sand, light gray (10YR 7/1) dry; weak medium subangular blocky structure; very friable; common fine to coarse roots; very strongly acid; clear wavy boundary.

Bs1—7 to 10 inches; dark brown (7.5YR 3/4) loamy fine sand; weak medium subangular blocky structure; very friable; few fine and medium roots; strongly acid; clear wavy boundary.

Bs2—10 to 17 inches; strong brown (7.5YR 4/6) loamy fine sand; weak medium subangular blocky structure; very friable; few fine roots; strongly acid; clear wavy boundary.

BC—17 to 31 inches; strong brown (7.5YR 5/6) sand; single grain; loose; moderately acid; gradual wavy boundary.

C—31 to 80 inches; brown (10YR 5/3) sand; single grain; loose; moderately acid.

Kinross Series

The Kinross series consists of very deep, poorly drained, rapidly permeable soils on lake plains and outwash plains. These soils formed in sandy glaciofluvial or glaciolacustrine deposits. Slopes range from 0 to 2 percent.

Typical pedon of Kinross muck; 200 feet east and 300 feet south of the northwest corner of sec. 15, T. 47 N., R. 9 W., McMillan Township, Luce County, Michigan; USGS Roy Lake, Michigan, topographic quadrangle; lat. 46 degrees 40 minutes 42 seconds N. and long. 85 degrees 16 minutes 56 seconds W., NAD 27:

Oa—0 to 3 inches; dark reddish brown (5YR 3/2) muck; friable; many fine to coarse roots; extremely acid; abrupt wavy boundary.

Eg—3 to 14 inches; 50 percent grayish brown (10YR 5/2) and 50 percent dark gray (10YR 4/1) sand, light gray (10YR 7/1) and gray (10YR 6/1) dry; weak medium subangular blocky structure; friable; few fine roots; 1 percent gravel; extremely acid; gradual wavy boundary.

Bhs—14 to 22 inches; dark brown (7.5YR 3/3) sand; weak medium subangular blocky structure; friable; few fine roots; few medium faint dark brown (7.5YR 3/2) masses of iron accumulation along root channels; strongly acid; gradual wavy boundary.

Bs—22 to 35 inches; dark yellowish brown (10YR 4/4) sand; weak medium subangular blocky structure; friable; strongly acid; gradual wavy boundary.

C—35 to 80 inches; yellowish brown (10YR 5/4) sand; single grain; loose; strongly acid.

Liminga Series

The Liminga series consists of very deep, well drained, rapidly permeable soils on moraines and outwash plains. These soils formed in sandy glaciofluvial deposits. Slopes range from 0 to 60 percent.

Typical pedon of Liminga fine sand, 0 to 6 percent slopes; 400 feet east and 3,100 feet south of the northwest corner of sec. 33, T. 45 N., R. 10 W., Pentland Township, Luce County, Michigan; USGS Newberry, Michigan, topographic quadrangle; lat. 46 degrees 15 minutes 05 seconds N. and long. 85 degrees 34 minutes 12 seconds W., NAD 27:

Oe—0 to 1 inch; partially decomposed leaf litter.

E—1 to 7 inches; brown (7.5YR 4/2) fine sand, brown (7.5YR 5/2) dry; weak fine subangular blocky structure; friable; many fine to coarse roots; extremely acid; abrupt wavy boundary.

Bhs—7 to 9 inches; dark brown (7.5YR 3/2) fine sand; weak fine subangular blocky structure; friable; many fine to coarse roots; extremely acid; abrupt broken boundary.

Bs1—9 to 12 inches; strong brown (7.5YR 4/6) fine sand; weak fine subangular blocky structure; friable; common fine to coarse roots; extremely acid; abrupt broken boundary.

Bs2—12 to 22 inches; strong brown (7.5YR 5/6) fine sand; weak fine subangular blocky structure; friable; common fine roots between columns of ortstein; ortstein occurs as moderately cemented columns 2 to 5 inches wide that extend to a depth of 29 inches; ortstein occupies 30 percent of the horizon; extremely acid; clear irregular boundary.

BC—22 to 31 inches; brownish yellow (10YR 6/6) fine sand; single grain; loose; extremely acid; clear wavy boundary.

C—31 to 80 inches; brownish yellow (10YR 6/6) fine sand; single grain; loose; one thin reddish brown (5YR 5/4) band; extremely acid.

Longrie Series

The Longrie series consists of moderately deep, well drained, moderately permeable soils on ground moraines and glacial lake benches. These soils formed in loamy glaciolacustrine and till deposits underlain by limestone bedrock. Slopes range from 0 to 35 percent.

Typical pedon of Longrie sandy loam, 1 to 6 percent slopes; 2,300 feet east and 2,500 feet south of the northwest corner of sec. 17, T. 44 N., R. 6 W., Trout Lake Township, Chippewa County, Michigan; USGS Trout Lake, Michigan, topographic quadrangle; lat. 46 degrees 12 minutes 27 seconds N. and long. 85 degrees 04 minutes 55 seconds W., NAD 27:

A—0 to 4 inches; black (5YR 2/1) sandy loam, dark gray (7.5YR 4/1) dry; moderate medium granular structure; friable; many fine to coarse roots; moderately acid; clear smooth boundary.

E—4 to 9 inches; reddish gray (5YR 5/2) sandy loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; moderately acid; clear wavy boundary.

Bhs—9 to 11 inches; dark reddish brown (5YR 3/3) fine sandy loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; moderately acid; clear irregular boundary.

Bs—11 to 27 inches; reddish brown (5YR 4/4) fine sandy loam; moderate medium subangular blocky structure; friable; many fine and medium roots; moderately acid; clear wavy boundary.

C—27 to 31 inches; light brown (7.5YR 6/4) gravelly loam; massive; friable; common fine and medium roots; about 15 percent gravel and 5 percent cobbles; strong effervescence; moderately alkaline; abrupt smooth boundary.

2R—31 inches; limestone bedrock.

Loxley Series

The Loxley series consists of very deep, very poorly drained soils in closed depressions on outwash plains, ground moraines, and lake plains. These soils formed in herbaceous material more than 51 inches thick. Permeability ranges from moderately slow to moderately rapid. Slopes range from 0 to 2 percent.

Typical pedon of Loxley peat, in an area of Dawson, Loxley, and Greenwood soils; 1,320 feet east and 50 feet south of the northwest corner of sec. 14, T. 44 N., R. 9 W., Lakefield Township, Luce County, Michigan; USGS McMillan, Michigan, topographic quadrangle; lat. 46 degrees 17 minutes 20 seconds N. and long. 85 degrees 38 minutes 31 seconds W., NAD 27:

Oi—0 to 8 inches; peat, dark yellowish brown (10YR 4/4) broken face and yellowish brown (10YR 5/4) rubbed; 100 percent sphagnum moss fibers, 95 percent rubbed; weak thick platy structure; friable; common fine and medium roots; extremely acid; abrupt smooth boundary.

Oa1—8 to 15 inches; muck, black (5YR 2/1) broken face and rubbed; about 45 percent fibers, 5 percent rubbed; weak thick platy structure; friable; common fine and medium roots; very strongly acid; clear smooth boundary.

Oa2—15 to 45 inches; muck, dark reddish brown (5YR 2/2) broken face and rubbed; about 45 percent fibers, 5 percent rubbed; massive; friable; very strongly acid; clear smooth boundary.

Oa3—45 to 80 inches; muck, dark reddish brown (5YR 2/2) broken face and rubbed; about 55 percent fibers, 5 percent rubbed; massive; friable; very strongly acid.

Lupton Series

The Lupton series consists of very deep, very poorly drained soils in depressions on lake plains, ground moraines, and outwash plains. These soils formed in herbaceous deposits more than 51 inches thick. Permeability ranges from moderately slow to moderately rapid. Slopes range from 0 to 2 percent.

Typical pedon of Lupton peat, in an area of Carbondale, Lupton, and Tawas soils; 462 feet north and 2,310 feet east of the southwest corner of sec. 18, T. 42 N., R. 13 W., Mueller Township, Schoolcraft County, Michigan; USGS Blaney Park, Michigan, topographic quadrangle; 46 degrees 01 minute 43 seconds N. and long. 85 degrees 58 minutes 45 seconds W., NAD 27:

Oi—0 to 4 inches; peat, black (7.5YR 2.5/1) broken face and rubbed; about 90 percent fiber unrubbed, 80 percent rubbed; weak coarse granular structure; friable; many fine and common medium and coarse roots; neutral; abrupt smooth boundary.

Oa1—4 to 14 inches; muck, black (5YR 2.5/1) broken face and rubbed; about 5 percent fiber, 1 percent rubbed; weak medium granular structure; friable; few fine to coarse roots; about 5 percent woody fragments throughout; slightly alkaline; abrupt smooth boundary.

Oa2—14 to 40 inches; muck, black (N 2/) broken face and rubbed; about 15 percent fiber unrubbed, a trace rubbed; massive; friable; slightly alkaline; few fine roots; about 3 percent woody fragments throughout; slightly alkaline; abrupt smooth boundary.

Oa3—40 to 80 inches; muck, black (N 2/) broken face and rubbed; about 15 percent fiber unrubbed, a trace rubbed; massive; friable; slightly alkaline; about 3 percent woody fragments throughout; slightly alkaline.

Mancelona Series

The Mancelona series consists of very deep, somewhat excessively drained soils on outwash terraces and outwash plains. These soils formed in sandy and gravelly glaciofluvial deposits. Permeability is moderately rapid or rapid in the upper part of the profile and very rapid in the sandy and gravelly lower part. Slopes range from 0 to 15 percent.

Typical pedon of Mancelona sandy loam, in an area of Nadeau-Mancelona complex, 1 to 6 percent slopes; southwest of Anderson Lake; 2,200 feet east and 2,150 feet south of the northwest corner of sec. 14, T. 44 N., R. 26 W., Forsythe Township, Marquette County, Michigan; USGS Northland NE, Michigan, topographic quadrangle; lat. 46 degrees 12 minutes 45 seconds N. and long. 87 degrees 31 minutes 27 seconds W., NAD 27:

A—0 to 3 inches; black (7.5YR 2.5/1) sandy loam, gray (7.5YR 5/1) dry; moderate fine granular structure; friable; many very fine to coarse roots; about 1 percent gravel; strongly acid; abrupt smooth boundary.

E—3 to 10 inches; reddish gray (5YR 5/2) loamy sand, light gray (7.5YR 7/1) dry; moderate medium subangular blocky structure; friable; common very fine to medium roots; about 1 percent gravel; moderately acid; abrupt wavy boundary.

Bs1—10 to 12 inches; dark reddish brown (5YR 3/4) loamy fine sand; moderate fine subangular blocky structure; friable; common very fine to medium roots; about 5 percent gravel and 1 percent cobbles; moderately acid; clear wavy boundary.

Bs2—12 to 18 inches; brown (7.5YR 4/4) loamy fine sand; moderate medium subangular blocky structure; friable; common very fine to medium roots; about 5 percent gravel and 1 percent cobbles; moderately acid; clear irregular boundary.

Bw—18 to 33 inches; yellowish brown (10YR 5/4) sand; moderate medium subangular blocky structure; friable; few very fine and fine roots; about 3 percent gravel and 1 percent cobbles; slightly acid; clear wavy boundary.

2Bt—33 to 37 inches; brown (7.5YR 4/2) gravelly sandy loam; moderate medium subangular blocky structure; friable; common very fine and fine roots; few distinct brown (7.5YR 4/3) clay films on faces of peds; few distinct brown (7.5YR 4/3) clay bridges between sand grains; about 15 percent gravel and 1 percent cobbles; neutral; clear wavy boundary.

3C—37 to 80 inches; stratified, light yellowish brown (10YR 6/4) and dark yellowish brown (10YR 3/4) very gravelly sand and sand; single grain; loose; about 25 percent gravel and 10 percent cobbles; slight effervescence; slightly alkaline.

Manistique Series

The Manistique series consists of moderately deep, somewhat poorly drained, rapidly permeable soils on glacial beach ridges. These soils formed in sandy beach deposits. Slopes range from 0 to 3 percent.

Typical pedon of Manistique fine sand, in an area of Shuberts-Manistique complex, 0 to 3 percent slopes; 1,800 feet south and 2,300 feet east of the northwest corner of sec. 18, T. 41 N., R. 15 W., Mueller Township, Schoolcraft County, Michigan; USGS Manistique East, Michigan, topographic quadrangle; lat. 46 degrees 56 minutes 58 seconds N. and long. 86 degrees 13 minutes 45 seconds W., NAD 27:

A—0 to 2 inches; black (N 2/) fine sand, very dark gray (10YR 3/1) dry; weak fine granular structure; very friable; many fine and few medium roots; strongly acid; abrupt wavy boundary.

E—2 to 12 inches; light brownish gray (10YR 6/2) fine sand; weak fine granular structure; very friable; few fine and medium roots; strongly acid; abrupt broken boundary.

Bw—12 to 24 inches; brown (7.5YR 4/4) fine sand; weak fine subangular blocky structure; few fine distinct grayish brown (10YR 6/2) masses of iron depletions throughout; neutral; clear wavy boundary.

C—24 to 28 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; common medium distinct strong brown (7.5YR 4/4) masses of iron accumulation throughout; common thin varves of black (10YR 2/1) mucky sand throughout; neutral; abrupt smooth boundary.

R—28 inches; hard, fractured limestone bedrock.

Markey Series

The Markey series consists of very deep, very poorly drained soils in depressions on outwash plains, lake plains, and flood plains. These soils formed in herbaceous material 16 to 50 inches thick overlying sandy deposits. Permeability is moderately slow to moderately rapid in the organic material and rapid in the underlying sandy material. Slopes range from 0 to 2 percent.

Typical pedon of Markey mucky peat; 1,100 feet east and 2,480 feet south of the northwest corner of sec. 27, T. 46 N., R. 17 W., Munising Township, Alger County, Michigan; USGS Shingleton, Michigan, topographic quadrangle; lat. 46 degrees 21 minutes 18 seconds N. and long. 86 degrees 25 minutes 29 seconds W., NAD 27:

Oe—0 to 3 inches; mucky peat, very dark brown (10YR 2/2) broken face and black (10YR 2/1) rubbed; about 50 percent fiber, 25 percent rubbed; weak fine granular structure; friable; many very fine and fine roots; extremely acid; abrupt smooth boundary.

Oa1—3 to 9 inches; muck, very dark gray (10YR 3/1) broken face and rubbed; about 20 percent fiber, less than 5 percent rubbed; weak medium platy structure; friable; many very fine and fine roots; very strongly acid; clear smooth boundary.

Oa2—9 to 20 inches; muck, very dark grayish brown (10YR 3/2) broken face and very dark gray (10YR 3/1) rubbed; about 10 percent fiber, less than 5 percent rubbed; weak medium platy structure; friable; many very fine and fine roots; very strongly acid; abrupt smooth boundary.

2Cg1—20 to 27 inches; dark grayish brown (10YR 4/2) sand; single grain; loose; few very fine roots at top of horizon; very strongly acid; gradual smooth boundary.

2Cg2—27 to 80 inches; brown (10YR 5/3) sand; single grain; loose; very strongly acid.

McMillan Series

The McMillan series consists of very deep, well drained soils on moraines. These soils formed in loamy material overlying sandy glaciofluvial deposits. Permeability is moderate in the upper loamy part and rapid in the lower sandy part. Slopes range from 0 to 60 percent.

Typical pedon of McMillan fine sandy loam, 15 to 35 percent slopes; 1,000 feet east and 1,250 feet south of the northwest corner of sec. 4, T. 45 N., R. 11 W., Lakefield Township, Luce County, Michigan; USGS McMillan, Michigan, topographic quadrangle; lat. 46 degrees 19 minutes 50 seconds N. and long. 85 degrees 41 minutes 35 seconds W., NAD 27:

Oe—0 to 1 inch; partially decomposed forest litter.

A—1 to 4 inches; very dark gray (10YR 3/1) fine sandy loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; many fine to coarse roots; about 2 percent gravel; very strongly acid; abrupt wavy boundary.

E—4 to 6 inches; brown (7.5YR 5/2) fine sandy loam, pinkish gray (7.5YR 6/2) dry; moderate medium subangular blocky structure; friable; many fine to coarse roots; very strongly acid; abrupt broken boundary.

Bhs—6 to 9 inches; dark brown (7.5YR 3/3) very fine sandy loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; about 5 percent gravel; very strongly acid; clear irregular boundary.

Bs1—9 to 16 inches; brown (7.5YR 4/4) very fine sandy loam; moderate medium subangular blocky structure; friable; common fine and medium roots; about 5 percent gravel; very strongly acid; clear wavy boundary.

Bs2—16 to 22 inches; strong brown (7.5YR 5/6) loamy fine sand; moderate medium subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.

Bw—22 to 32 inches; reddish yellow (7.5YR 6/6) sand; weak medium subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.

E and Bt—32 to 80 inches; light brown (7.5YR 6/3) sand (E), pinkish gray (7.5YR 7/2) dry; lamellae of brown (7.5YR 5/4) loamy sand (Bt); massive; friable; few fine roots; about 1 percent gravel; strongly acid.

Meehan Series

The Meehan series consists of very deep, somewhat poorly drained, rapidly permeable soils on outwash plains and stream terraces. These soils formed in sandy glaciofluvial deposits. Slopes range from 0 to 3 percent.

Typical pedon of Meehan loamy sand, in an area of Deford-Meehan-Seney complex, 0 to 3 percent slopes; 2,110 feet south of the northeast corner of sec. 5, T. 43 N., R. 15 W., Manistique Township, Schoolcraft County, Michigan; USGS Marsh Creek

Pool NW, Michigan, topographic quadrangle; lat. 46 degrees 09 minutes 09 seconds N. and long. 86 degrees 11 minutes 55 seconds W., NAD 27:

Oa—0 to 3 inches; well decomposed forest litter.

E—3 to 7 inches; brown (10YR 5/3) loamy sand, light gray (10YR 7/1) dry; weak fine subangular blocky structure; very friable; common fine to coarse roots; extremely acid; clear smooth boundary.

Bw1—7 to 8 inches; dark yellowish brown (10YR 4/4) loamy sand; weak fine subangular blocky structure; very friable; common fine to coarse roots; very strongly acid; gradual wavy boundary.

Bw2—8 to 11 inches; brownish yellow (10YR 6/6) sand; weak medium subangular blocky structure; very friable; few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; few medium and fine roots; very strongly acid; gradual wavy boundary.

C1—11 to 23 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid; gradual wavy boundary.

C2—23 to 80 inches; very pale brown (10YR 7/4) sand; single grain; loose; strongly acid.

Menominee Series

The Menominee series consists of very deep, well drained soils on ground moraines. These soils formed in sandy glaciofluvial deposits underlain by loamy till. Permeability is rapid in the upper sandy part and moderate in the lower loamy part. Slopes range from 2 to 35 percent.

Typical pedon of Menominee sand, in an area of Menominee-Graveraet complex, 0 to 6 percent slopes; 400 feet south and 1,600 feet east of the northwest corner of sec. 36, T. 45 N., R. 11 W., Lakefield Township, Luce County, Michigan; USGS McMillan, Michigan, topographic quadrangle; lat. 46 degrees 15 minutes 31 seconds N. and long. 85 degrees 37 minutes 43 seconds W., NAD 27:

Oe—0 to 1 inch; partially decomposed forest litter.

E—1 to 8 inches; brown (7.5YR 5/2) sand, pinkish gray (7.5YR 6/2) dry; weak medium subangular blocky structure; friable; many fine to coarse roots; very strongly acid; abrupt wavy boundary.

Bhs—8 to 11 inches; dark reddish brown (7.5YR 3/3) sand; weak medium subangular blocky structure; friable; many fine to coarse roots; very strongly acid; abrupt irregular boundary.

Bs1—11 to 22 inches; brown (7.5YR 4/4) sand; weak medium and fine subangular blocky structure; friable; many fine to coarse roots between columns of ortstein; columns of moderately cemented dark brown (7.5YR 3/3) and strong brown (7.5YR 4/6) ortstein extend into the Bs2 horizon; ortstein occupies 10 percent of the horizon; strongly acid; clear irregular boundary.

Bs2—22 to 34 inches; strong brown (7.5YR 5/6) sand; moderate medium subangular blocky structure; friable; few fine to coarse roots; strongly acid; abrupt wavy boundary.

2B/E—34 to 46 inches; reddish brown (5YR 5/4) clay loam (Bt); occupies about 80 percent of the horizon surrounded by reddish gray (5YR 5/2) (E) fine sandy loam, pinkish gray (7.5YR 6/2) dry; moderate medium subangular blocky structure; friable; few fine roots; common fine vesicular pores; about 5 percent gravel and 1 percent cobbles; slightly acid; clear irregular boundary.

2C1—46 to 62 inches; reddish brown (5YR 4/4) loam; massive; friable; about 5 percent gravel and 1 percent cobbles; slight effervescence; moderately alkaline; gradual wavy boundary.

3C2—62 to 80 inches; stratified, light reddish brown (5YR 6/3) sand and reddish brown (5YR 4/4) and yellowish red (5YR 4/6) loamy sand; massive; friable; slightly acid.

Minocqua Series

The Minocqua series consists of deep, poorly drained soils in drainageways and depressions on moraines and outwash plains. These soils formed in loamy material overlying sandy and gravelly material. Permeability is moderate in the solum and rapid or very rapid in the substratum. Slopes range from 0 to 2 percent.

Typical pedon of Minocqua muck; 350 feet east and 1,400 feet south of the northwest corner of sec. 9, T. 45 N., R. 26 W., Marquette County, Michigan; USGS Cataract Basin topographic quadrangle; lat. 46 degrees 18 minutes 54 seconds N. and long. 87 degrees 34 minutes 25 seconds W., NAD 27:

Oi—0 to 2 inches; dark brown (7.5YR 3/2), undecomposed sphagnum moss; extremely acid; abrupt smooth boundary.

Oa—2 to 5 inches; black (7.5YR 2.5/1) muck; moderate medium granular structure; very friable; many very fine to coarse roots; very strongly acid; clear broken boundary.

A—5 to 7 inches; very dark gray (10YR 3/1) mucky fine sandy loam, gray (10YR 5/1) dry; moderate medium subangular blocky structure; friable; few very fine to coarse roots; about 2 percent gravel; very strongly acid; clear smooth boundary.

Eg1—7 to 11 inches; dark grayish brown (10YR 4/2) fine sandy loam, light brownish gray (10YR 6/2) dry; moderate medium subangular blocky structure; friable; few very fine and fine roots; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; about 2 percent gravel; strongly acid; gradual broken boundary.

Eg2—11 to 18 inches; grayish brown (2.5Y 5/2) very fine sandy loam, light gray (10YR 7/2) dry; moderate medium subangular blocky structure; friable; few very fine and fine roots; many medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; about 2 percent gravel; strongly acid; clear broken boundary.

Bg—18 to 23 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine subangular blocky structure; very friable; thin lenses of loamy sand; few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; about 5 percent gravel; moderately acid; abrupt smooth boundary.

2Cg—23 to 80 inches; dark grayish brown (10YR 4/2) gravelly coarse sand; single grain; loose; about 25 percent gravel; moderately acid.

Munising Series

The Munising series consists of very deep, moderately well drained soils on ground moraines. These soils are shallow or moderately deep to a fragipan. They formed in loamy eolian deposits over loamy till. Permeability is moderate in the upper part of the profile, very slow in the fragipan, and moderate in the underlying material. Slopes range from 0 to 12 percent.

Typical pedon of Munising fine sandy loam, in an area of Munising-Yalmer-Frohling complex, calcareous substratum, 1 to 6 percent slopes; 2,500 feet north and 325 feet east of the southwest corner of sec. 27, T. 47 N., R. 18 W., Munising Township, Alger County, Michigan; USGS Indiantown, Michigan, topographic quadrangle; lat. 46 degrees 26 minutes 26 seconds N. and long. 86 degrees 33 minutes 04 seconds W., NAD 27:

Oa—0 to 1 inch; partially decomposed forest litter.

E—1 to 3 inches; light reddish gray (5YR 6/3) fine sandy loam, pinkish gray (5YR 7/2) dry; weak very fine granular structure; friable; many very fine to coarse roots; about 4 percent gravel and 1 percent cobbles; very strongly acid; abrupt broken boundary.

Bhs—3 to 6 inches; dark reddish brown (5YR 3/2) fine sandy loam; weak fine subangular blocky structure; friable; many very fine to coarse roots; about 4 percent gravel and 1 percent cobbles; very strongly acid; gradual irregular boundary.

Bs—6 to 23 inches; reddish brown (5YR 4/4) fine sandy loam; weak fine subangular blocky structure; friable; many very fine to coarse roots; about 4 percent gravel and 1 percent cobbles; very strongly acid; gradual wavy boundary.

2(E/B)x—23 to 38 inches; reddish brown (5YR 5/3) loamy sand (E), pink (5YR 7/3) dry; occupies about 60 percent of the horizon surrounding peds of reddish brown (2.5YR 4/4) fine sandy loam (Bt); moderate medium platy structure; very firm; few very fine and fine roots in cracks; few very fine and medium vesicular pores; many distinct reddish brown (2.5YR 3/4) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/8) iron-manganese concentrations on faces of peds; about 4 percent gravel and 1 percent cobbles; strongly acid; gradual wavy boundary.

2(B/E)x—38 to 50 inches; reddish brown (2.5YR 4/4) fine sandy loam (Bt); occupies about 70 percent of the horizon surrounding peds of reddish brown (5YR 5/3) loamy sand (E), pink (5YR 7/3) dry; weak medium platy structure; very firm; few very fine and fine roots in cracks; few very fine and medium vesicular pores; many distinct reddish brown (2.5YR 3/4) clay films on faces of peds; about 6 percent gravel, 3 percent cobbles, and 1 percent stones; strongly acid; gradual wavy boundary.

2BC—50 to 63 inches; reddish brown (5YR 5/4) gravelly fine sandy loam; weak medium platy structure; firm; about 12 percent gravel, 5 percent cobbles, and 2 percent stones; moderately acid; gradual wavy boundary.

2C—63 to 80 inches; brown (7.5YR 5/4) gravelly fine sandy loam; massive; friable; about 12 percent gravel, 5 percent cobbles, and 2 percent stones; slight effervescence; slightly alkaline.

Neconish Series

The Neconish series consists of very deep, moderately well drained, rapidly permeable soils on outwash plains. These soils formed in sandy glaciofluvial deposits. Slopes range from 0 to 6 percent.

Typical pedon of Neconish fine sand, in an area of Neconish-Kinross-Wainola complex, 0 to 6 percent slopes; 1,500 feet east and 1,500 feet south of the northwest corner of sec. 27, T. 45 N., R. 13 W., Germfask Township, Schoolcraft County, Michigan; USGS Seney, Michigan, topographic quadrangle; lat. 46 degrees 16 minutes 13 seconds N. and long. 85 degrees 55 minutes 16 seconds W., NAD 27:

Oe—0 to 1 inch; black (10YR 2/1), partially decomposed forest litter.

E—1 to 8 inches; brown (7.5YR 5/2) fine sand, pinkish gray (7.5YR 6/2) dry; weak medium subangular blocky structure; friable; common fine to coarse roots; extremely acid; abrupt irregular boundary.

Bs1—8 to 9 inches; dark brown (7.5YR 3/4) fine sand; weak medium subangular blocky structure; friable; many fine to coarse roots; very strongly acid; abrupt broken boundary.

Bs2—9 to 15 inches; brown (7.5YR 4/4) fine sand; weak medium subangular blocky structure; friable; common fine to coarse roots; very strongly acid; clear wavy boundary.

Bs3—15 to 21 inches; strong brown (7.5YR 4/6) fine sand; weak medium subangular blocky structure; friable; few fine and medium roots; strongly acid; clear irregular boundary.

BC—21 to 32 inches; reddish yellow (7.5YR 6/6) fine sand; weak medium subangular blocky structure; friable; few fine faint strong brown (7.5YR 5/6) masses of iron accumulation throughout; strongly acid; clear wavy boundary.

C—32 to 80 inches; light brown (7.5YR 6/4) fine sand; single grain; loose; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation throughout; strongly acid.

Noseum Series

The Noseum series consists of very deep, moderately well drained soils on ground moraines and lake plains. These soils formed in loamy over sandy glaciofluvial deposits. Permeability is moderately rapid in the loamy cap and rapid in the sandy material. Slopes range from 0 to 4 percent.

Typical pedon of Noseum fine sandy loam, 0 to 4 percent slopes; 1,000 feet west and 300 feet north of the southeast corner of sec. 34, T. 47 N., R. 10 W., McMillan Township, Luce County, Michigan; USGS Auger Lake, Michigan, topographic quadrangle; lat. 46 degrees 25 minutes 12 seconds N. and long. 85 degrees 32 minutes 06 seconds W., NAD 27:

Oa—0 to 2 inches; well decomposed forest litter.

E—2 to 5 inches; brown (7.5YR 5/2) fine sandy loam; weak medium subangular blocky structure; friable; few fine to coarse roots; extremely acid; abrupt irregular boundary.

Bhs—5 to 7 inches; dark brown (7.5YR 3/2) fine sandy loam; weak medium subangular blocky structure; friable; many fine to coarse roots; extremely acid; clear irregular boundary.

Bs1—7 to 19 inches; brown (7.5YR 4/4) fine sandy loam; weak fine subangular blocky structure; very friable; few fine to coarse roots; extremely acid; gradual irregular boundary.

2Bs2—19 to 27 inches; strong brown (7.5YR 5/6) sand; single grain; loose; columns of very weakly cemented ortstein occupy about 30 percent of the horizon; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation in the lower 2 inches; about 3 percent gravel; extremely acid; gradual irregular boundary.

2BC—27 to 39 inches; reddish yellow (10YR 6/6) sand; single grain; loose; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; about 6 percent gravel; extremely acid; gradual wavy boundary.

2C—39 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; extremely acid.

Paquin Series

The Paquin series consists of very deep, moderately well drained, sandy soils on lake plains, outwash plains, ground moraines, low dunes, and beach ridges. These soils formed in sandy glaciofluvial deposits. The subsoil has ortstein layers. Permeability is moderate or moderately rapid in the ortstein layers and rapid in the rest of the profile. Slopes range from 0 to 6 percent.

Typical pedon of Paquin sand, 0 to 6 percent slopes; 900 feet south and 75 feet east of the northwest corner of sec. 7, T. 44 N., R. 7 W., Hendricks Township, Mackinac County, Michigan; USGS Rexton, Michigan, topographic quadrangle; lat. 46 degrees 13 minutes 42 seconds N. and long. 85 degrees 14 minutes 15 seconds W., NAD 27:

Oe—0 to 2 inches; partially decomposed forest litter.

E—2 to 12 inches; brown (7.5YR 5/2) sand, pinkish gray (7.5YR 6/2) dry; weak medium subangular blocky structure; very friable; many fine to coarse roots; strongly acid; clear smooth boundary.

Bhs—12 to 14 inches; very dark brown (7.5YR 2/2) sand; weak fine subangular blocky structure; very friable; many fine to coarse roots; strongly acid; clear wavy boundary.

Bhsm—14 to 17 inches; very dark brown (7.5YR 2/2) sand; massive; extremely firm; few fine roots; ortstein occupies 100 percent of the horizon and is strongly cemented; the ortstein occurs as a continuous layer with tongues that extend to a depth of 22 inches; strongly acid; clear irregular boundary.

Bsm—17 to 27 inches; dark brown (7.5YR 3/4) sand; massive; extremely firm; ortstein occupies 100 percent of the horizon and is strongly cemented; the ortstein occurs as a continuous layer with tongues that extend to a depth of 31 inches; strongly acid; clear irregular boundary.

BC—27 to 34 inches; strong brown (7.5YR 4/6) sand; single grain; loose; common fine distinct strong brown (7.5YR 5/8) masses of iron accumulation in the lower 2 inches; strongly acid; gradual wavy boundary.

C—34 to 80 inches; yellowish brown (10YR 5/4) sand; single grain; loose; common coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation; moderately acid.

Pelkie Series

The Pelkie series consists of very deep, moderately well drained soils on flood plains. These soils formed in sandy alluvium. Permeability is rapid. Slopes range from 0 to 4 percent.

Typical pedon of Pelkie loamy fine sand, in an area of Pelkie, occasionally flooded-Deford, frequently flooded, complex, 0 to 4 percent slopes; 1,980 feet west and 132 feet south of the northeast corner of sec. 33, T. 43 N., R. 14 W., Doyle Township, Schoolcraft County, Michigan; USGS Merwin Lake topographic quadrangle; lat. 46 degrees 05 minutes 09 seconds N. and long. 86 degrees 03 minutes 41 seconds W., NAD 27:

A—0 to 4 inches; black (10YR 2/1) loamy fine sand, very dark gray (10YR 3/1) dry; weak medium granular structure; very friable; many fine and medium roots; strongly acid; abrupt wavy boundary.

C1—4 to 8 inches; dark yellowish brown (10YR 4/4) loamy fine sand; weak medium subangular blocky structure; very friable; common fine roots; strongly acid; clear wavy boundary.

C2—8 to 21 inches; dark yellowish brown (10YR 4/6) loamy fine sand; weak medium subangular blocky structure; very friable; common fine roots; strongly acid; clear smooth boundary.

C3—21 to 38 inches; yellowish brown (10YR 5/4) loamy fine sand; weak thick platy structure; very friable; few fine roots; slightly acid; clear smooth boundary.

C4—38 to 80 inches; yellowish brown (10YR 5/4) sand; common medium distinct yellowish red (5YR 5/6) masses of iron accumulation; single grain; loose; slightly acid.

Pickford Series

The Pickford series consists of very deep, poorly drained, very slowly permeable soils on lake plains and in depressions on ground moraines. These soils formed in clayey glaciolacustrine deposits. Slopes range from 0 to 2 percent.

Typical pedon of Pickford silty clay loam; 130 feet east and 570 feet south of the northwest corner of sec. 30, T. 46 N., R. 1 E., Bruce Township, Chippewa County, Michigan; USGS Barbeau, Michigan, topographic quadrangle; lat. 46 degrees 21 minutes 33 seconds N. and long. 84 degrees 21 minutes 49 seconds W., NAD 27:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 6/1) dry; moderate fine granular structure; friable; moderately acid; abrupt smooth boundary.

Eg—8 to 10 inches; dark gray (10YR 4/1) silty clay loam; moderate fine subangular blocky structure; firm; many fine and medium roots; common fine prominent yellowish brown (10YR 5/8) masses of iron accumulation throughout; neutral; clear wavy boundary.

Bg—10 to 16 inches; weak red (2.5YR 4/2) silty clay; moderate fine angular blocky structure; firm; few fine roots; many coarse prominent strong brown (7.5YR 5/8) masses of iron accumulation and dark gray (10YR 4/1) masses of iron depletions throughout; neutral; gradual wavy boundary.

BC—16 to 24 inches; weak red (2.5YR 4/2) clay; weak fine angular blocky structure; very firm; few fine roots; common fine prominent strong brown (7.5YR 5/8) masses of iron accumulation and dark gray (10YR 4/1) masses of iron depletions throughout; neutral; gradual wavy boundary.

C—24 to 80 inches; reddish brown (2.5YR 4/4) clay; massive; very firm; common fine prominent yellowish red (5YR 5/8) masses of iron accumulation throughout; common masses of greenish gray (5GY 6/1) calcium carbonate; strong effervescence; moderately alkaline.

Proper Series

The Proper series consists of very deep, moderately well drained soils on beach ridges, low dunes, and stream terraces. These soils formed in sandy glaciofluvial or eolian deposits. The subsoil has ortstein layers. Permeability is moderate or moderately rapid in the ortstein layers and rapid in the rest of the profile. Slopes range from 0 to 6 percent.

Typical pedon of Proper sand, 0 to 6 percent slopes; 500 feet south and 200 feet west of the northeast corner of sec. 13, T. 44 N., R. 17 W., Thompson Township, Schoolcraft County, Michigan; USGS Steuben NE, Michigan, topographic quadrangle; lat. 46 degrees 12 minutes 54 seconds N. and long. 86 degrees 21 minutes 56 seconds W., NAD 27:

Oe—0 to 2 inches; partially decomposed forest litter.

E—2 to 11 inches; brown (7.5YR 5/2) sand, pinkish gray (7.5YR 6/2) dry; weak medium subangular blocky structure; very friable; common fine and medium roots; very strongly acid; clear irregular boundary.

Bs1—11 to 16 inches; dark brown (7.5YR 3/4) sand; weak medium subangular blocky structure; very friable; common fine to coarse roots; strongly acid; clear wavy boundary.

Bs2—16 to 21 inches; strong brown (7.5YR 4/6) sand; weak medium subangular blocky structure; very friable; few fine to coarse roots between columns of ortstein; columns of moderately cemented, strong brown (7.5YR 5/6) and dark reddish brown (5YR 3/2) ortstein 2 to 22 inches wide extend into the BC horizon; ortstein columns are 3 to 6 inches apart; ortstein occupies 80 percent of this horizon; strongly acid; clear irregular boundary.

BC—21 to 32 inches; brown (7.5YR 5/4) sand; single grain; loose; few fine faint strong brown (7.5YR 5/6) masses of iron accumulation below a depth of 28 inches; few fine roots between columns of ortstein; columns of moderately cemented, strong brown (7.5YR 5/6) and dark reddish brown (5YR 3/2) ortstein 2 to 4 inches wide; ortstein columns are 9 to 16 inches apart; ortstein occupies 20 percent of this horizon; about 1 percent gravel; strongly acid; clear wavy boundary.

C—32 to 80 inches; light brown (7.5YR 6/4) sand; single grain; loose; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation throughout; about 5 percent gravel; strongly acid.

Rousseau Series

The Rousseau series consists of very deep, well drained, rapidly permeable soils on outwash plains, dunes, and lake plains. These soils formed in sandy glaciofluvial and eolian deposits. Slopes range from 0 to 70 percent.

Typical pedon of Rousseau fine sand, 0 to 6 percent slopes; 2,560 feet west and 200 feet south of the northeast corner of sec. 26, T. 43 N., R. 16 W., Hiawatha Township, Schoolcraft County, Michigan; USGS Hiawatha, Michigan, topographic quadrangle; lat. 46 degrees 05 minutes 57 seconds N. and long. 86 degrees 06 minutes 16 seconds W., NAD 27:

Oi—0 to 1 inch; partially decomposed forest litter.

E—1 to 4 inches; dark gray (10YR 4/1) fine sand, light brownish gray (10YR 6/2) dry; weak medium granular structure; very friable; many fine and common medium and coarse roots; strongly acid; clear irregular boundary.

Bs1—4 to 9 inches; brown (7.5YR 4/4) fine sand; weak medium subangular blocky structure; very friable; common fine and few medium and coarse roots; strongly acid; clear wavy boundary.

Bs2—9 to 20 inches; strong brown (7.5YR 4/6) fine sand; weak medium subangular blocky structure; very friable; few fine to coarse roots between columns of ortstein; columns of moderately cemented, strong brown (7.5YR 5/8), brown (7.5YR 4/4), and pinkish gray (7.5YR 6/2) ortstein 3 to 10 inches wide extend into the BC horizon; ortstein columns are 3 to 20 inches apart; ortstein occupies 30 percent of the horizon; strongly acid; clear wavy boundary.

BC—20 to 33 inches; light yellowish brown (10YR 6/4) fine sand; weak fine granular structure; very friable; few fine roots between columns of ortstein; columns of moderately cemented, strong brown (7.5YR 5/8), brown (7.5YR 4/4), and pinkish gray (7.5YR 6/2) ortstein 3 to 14 inches wide extend into this horizon from the Bs2 horizon; ortstein columns are 3 to 10 inches apart; ortstein occupies 30 percent of the horizon; strongly acid; clear wavy boundary.

C1—33 to 66 inches; light yellowish brown (10YR 6/4) fine sand; single grain; loose; few thin discontinuous strong brown (7.5YR 4/6) depositional bands $^{1}/_{16}$ to $^{1}/_{8}$ inch thick; about 1 percent fine gravel; moderately acid; clear wavy boundary.

C2—66 to 80 inches; yellowish brown (10YR 5/4) sand; single grain; loose; about 1 percent fine gravel; moderately acid.

Rubicon Series

The Rubicon series consists of very deep, excessively drained, rapidly permeable soils on lake plains, outwash plains, and stream terraces. These soils formed in sandy glaciofluvial deposits. Slopes range from 0 to 60 percent.

Typical pedon of Rubicon sand, 0 to 6 percent slopes; 1,914 feet east and 1,320 feet south of the northwest corner of sec. 1, T. 42 N., R. 16 W., Hiawatha Township, Schoolcraft County, Michigan; USGS Hiawatha, Michigan, topographic quadrangle; lat.

46 degrees 04 minutes 02 seconds N. and long. 86 degrees 15 minutes 15 seconds W., NAD 27:

Oi—0 to 2 inches; slightly decomposed forest litter.

E—2 to 5 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/1) dry; weak medium granular structure; very friable; many fine and few medium roots; about 1 percent fine gravel; strongly acid; clear irregular boundary.

Bs1—5 to 10 inches; dark brown (7.5YR 3/4) sand; weak medium granular structure; very friable; common fine and few medium roots; about 1 percent fine gravel; strongly acid; clear wavy boundary.

Bs2—10 to 20 inches; strong brown (7.5YR 4/6) sand; weak medium granular structure; very friable; common fine and few medium roots; about 1 percent fine gravel; strongly acid; clear wavy boundary.

Bs3—20 to 30 inches; strong brown (7.5YR 5/6) sand; single grain; loose; few fine roots between ortstein columns; columns of weakly cemented, dark reddish brown (5YR 3/3) and yellowish brown (10YR 5/6) ortstein 1 to 3 inches wide extend into the BC horizon; ortstein columns are 5 to 20 inches apart; ortstein occupies 15 percent of the horizon; about 1 percent fine gravel; moderately acid; clear irregular boundary.

BC—30 to 38 inches; yellowish brown (10YR 5/6) sand; single grain; loose; few fine roots between ortstein columns; columns of weakly cemented, dark reddish brown (5YR 3/3) and yellowish brown (10YR 5/6) ortstein 1 to 3 inches wide extend into this horizon from the Bs3 horizon; ortstein columns are 5 to 30 inches apart; ortstein occupies 10 percent of the horizon; about 3 percent fine gravel; moderately acid; gradual wavy boundary.

C1—38 to 48 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few fine roots; about 3 percent fine gravel; slightly acid; gradual wavy boundary.

C2—48 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; about 3 percent fine gravel; slightly acid.

Ruse Series

The Ruse series consists of shallow, poorly drained soils on ground moraines and glacial lake benches. These soils formed in loamy till or water-worked till overlying limestone bedrock. Permeability is moderate or moderately rapid. Slopes range from 0 to 2 percent.

Typical pedon of Ruse mucky loam; 2,000 feet east and 1,500 feet south of the northwest corner of sec. 19, T. 43 N., R. 10 W., Garfield Township, Mackinac County, Michigan; USGS Engadine, Michigan, topographic quadrangle; lat. 46 degrees 06 minutes 41 seconds N. and long. 85 degrees 36 minutes 19 seconds W., NAD 27:

A—0 to 7 inches; black (10YR 2/1) mucky loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; many fine to coarse roots; neutral; abrupt smooth boundary.

Bg—7 to 11 inches; grayish brown (10YR 5/2) sandy loam; weak medium subangular blocky structure; friable; common fine to coarse roots; many fine faint gray (10YR 6/1) iron depletions throughout; slightly alkaline; abrupt smooth boundary.

Bw—11 to 15 inches; pale brown (10YR 6/3) sandy loam; weak thick platy structure; friable; few fine roots; common fine prominent yellowish brown (7.5YR 5/6) masses of iron accumulation and common fine distinct light brownish gray (2.5Y 6/2) iron depletions throughout; slightly alkaline; abrupt smooth boundary.

2R—15 inches; fractured limestone bedrock.

Seney Series

The Seney series consists of very deep, somewhat poorly drained soils on low braided stream terraces and outwash plains. These soils formed in sandy glaciofluvial deposits. Permeability is moderate in the loamy surface layer and rapid in the substratum. Slopes range from 0 to 3 percent.

Typical pedon of Seney fine sandy loam, in an area of Deford-Meehan-Seney complex, 0 to 3 percent slopes; 350 feet east and 1,700 feet north of the southwest corner of sec. 28, T. 44 N., R. 15 W., Hiawatha Township, Schoolcraft County, Michigan; USGS Marsh Creek Pool NW, Michigan, topographic quadrangle; lat. 44 degrees 10 minutes 38 seconds N. and long. 86 degrees 11 minutes 47 seconds W., NAD 27:

Oe—0 to 1 inch; partially decomposed forest litter.

A—1 to 5 inches; dark reddish brown (2.5YR 3/3) fine sandy loam, weak red (2.5YR 4/2) dry; weak medium subangular blocky structure; friable; many fine to coarse roots; extremely acid; clear wavy boundary.

Bw—5 to 14 inches; strong brown (7.5YR 5/6) loamy sand; weak medium subangular blocky structure; very friable; common fine and medium roots; few fine faint yellowish red (5YR 5/6) and common fine faint strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

C1—14 to 35 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; few black (10YR 2/1) organic stains; strongly acid; gradual wavy boundary.

C2—35 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; slightly acid.

Shingleton Series

The Shingleton series consists of shallow, somewhat excessively drained, rapidly permeable soils on ground moraines. These soils formed in sandy glaciofluvial deposits. Slopes range from 1 to 6 percent.

Typical pedon of Shingleton loamy sand, in an area of Furlong-Shingleton complex, 1 to 6 percent slopes; 100 feet east and 1,800 feet north of the southwest corner of sec. 22, T. 40 N., R. 17 W., Thompson Township, Schoolcraft County, Michigan; USGS Hiram Point, Michigan, topographic quadrangle; lat. 45 degrees 50 minutes 35.7 seconds N. and long. 86 degrees 23 minutes 47 seconds W., NAD 27:

A—0 to 1 inch; very dark gray (7.5YR 3/1) loamy sand, dark gray (7.5YR 4/1) dry; weak fine granular structure; very friable; common fine and medium roots; about 1 percent fine gravel; strongly acid; abrupt wavy boundary.

E—1 to 7 inches; brown (7.5YR 5/2) loamy sand, light gray (7.5YR 5/2) dry; weak medium subangular blocky structure; very friable; few fine and common roots; about 1 percent fine gravel; very strongly acid; clear irregular boundary.

Bhs—7 to 8 inches; dark reddish brown (5YR 3/2) loamy sand; weak medium subangular blocky structure; very friable; many fine, common medium, and few coarse roots; about 1 percent fine gravel; very strongly acid; abrupt broken boundary.

Bs—8 to 11 inches; dark reddish brown (5YR 3/4) loamy sand; weak medium subangular blocky structure; very friable; few fine to coarse roots; about 1 percent fine gravel; strongly acid; abrupt wavy boundary.

2R—11 inches; limestone bedrock.

Shuberts Series

The Shuberts series consists of moderately deep, poorly drained, rapidly permeable soils in swales. These soils formed in sandy glacial beach deposits. Slopes range from 0 to 2 percent.

Typical pedon of Shuberts muck, in an area of Shuberts-Manistique complex, 0 to 3 percent slopes; 1,160 feet south and 2,010 feet west of the northeast corner of sec. 22, T. 41 N., R. 13 W., Mueller Township, Schoolcraft County, Michigan; USGS Seul Choix Point, Michigan, topographic quadrangle; lat. 45 degrees 56 minutes 10 seconds N. and long. 85 degrees 56 minutes 12 seconds W., NAD 27:

Oa—0 to 6 inches; black (N 2/) muck; weak fine granular structure; very friable; common fine to coarse roots; moderately acid; abrupt wavy boundary.

C—6 to 28 inches; brown (10YR 5/3) sand; single grain; loose; few fine to coarse roots in the upper part; many fine distinct grayish brown (2.5Y 5/2) iron depletions and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; neutral; clear wavy boundary.

2R—28 inches; fractured limestone bedrock.

Spot Series

The Spot series consists of shallow, poorly drained, sandy soils on outwash plains, lake plains, and ground moraines. These soils formed in sandy glaciofluvial deposits. The subsoil has ortstein layers. Permeability is moderate or moderately rapid in the ortstein layers and rapid in the rest of the profile. Slopes range from 0 to 2 percent.

Typical pedon of Spot peat; 1,550 feet west and 600 feet north of the southeast corner of sec. 27, T. 44 N., R. 9 W., Garfield Township, Mackinac County, Michigan; USGS Gilchrist, Michigan, topographic quadrangle; lat. 46 degrees 10 minutes 29 seconds N. and long. 85 degrees 24 minutes 37 seconds W., NAD 27:

Oi—0 to 1 inch; black (10YR 2/1) peat.

Oa—1 to 2 inches; muck, black (N 2/) broken face and rubbed; moderate medium granular structure; friable; many fine to coarse roots; very strongly acid; abrupt smooth boundary.

E—2 to 8 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/1) dry; weak medium subangular blocky structure; friable; common fine and medium roots; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.

Bhsm—8 to 10 inches; dark reddish brown (5YR 3/3 and 3/2) sand; massive; extremely firm; common fine and medium roots; ortstein occupies 90 percent of the horizon and is strongly cemented; the ortstein occurs as a nearly continuous layer with tongues that extend to a depth of 18 inches; very strongly acid; clear irregular boundary.

Bs1—10 to 12 inches; dark brown (7.5YR 4/4) sand; weak fine subangular blocky structure; friable; ortstein occupies 70 percent of the horizon and is moderately cemented; the ortstein occurs as a nearly continuous layer with tongues that extend to a depth of 22 inches; strongly acid; clear irregular boundary.

Bs2—12 to 18 inches; strong brown (7.5YR 4/6) sand; weak fine subangular blocky structure; friable; ortstein occupies 30 percent of the horizon and is weakly cemented; the ortstein occurs as tongues 2 to 6 inches wide that extend to a depth of 25 inches; strongly acid; gradual wavy boundary.

C1—18 to 41 inches; light brown (7.5YR 6/4) sand; single grain; loose; strongly acid; gradual wavy boundary.

C2—41 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; moderately acid.

Springlake Series

The Springlake series consists of very deep, somewhat excessively drained, very rapidly permeable soils on outwash plains, ground moraines, and beach ridges. These soils formed in sandy and gravelly glaciofluvial deposits. Slopes range from 0 to 35 percent.

Typical pedon of Springlake loamy coarse sand, 0 to 6 percent slopes; 3,000 feet north and 200 feet west of the southeast corner of sec. 30, T. 44 N., R. 7 W., Hudson Township, Mackinac County, Michigan; USGS Rexton, Michigan, topographic quadrangle; lat. 46 degrees 10 minutes 53 seconds N. and long. 85 degrees 13 minutes 03 seconds W., NAD 27:

Oi—0 to 1 inch; slightly decomposed forest litter.

A—1 to 7 inches; very dark grayish brown (10YR 3/2) loamy coarse sand, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure; very friable; many fine to coarse roots; moderately acid; clear irregular boundary.

E—7 to 9 inches; grayish brown (10YR 5/2) loamy coarse sand, light brownish gray (10YR 6/2) dry; weak fine subangular blocky structure; very friable; many fine to coarse roots; moderately acid; clear smooth boundary.

Bhs—9 to 14 inches; dark brown (7.5YR 3/3) loamy coarse sand; weak fine subangular blocky structure; very friable; common fine and medium roots; moderately acid; clear wavy boundary.

Bs—14 to 23 inches; strong brown (7.5YR 4/6) loamy coarse sand; single grain; loose; common fine roots; about 5 percent gravel; neutral; clear wavy boundary.

2BC—23 to 26 inches; strong brown (7.5YR 5/6) gravelly coarse sand; single grain; loose; about 15 percent gravel; slightly alkaline; clear wavy boundary.

2C—26 to 80 inches; light yellowish brown (10YR 6/4) gravelly coarse sand; single grain; loose; about 15 percent gravel; strong effervescence; moderately alkaline.

Stutts Series

The Stutts series consists of very deep, somewhat excessively drained soils on outwash plains and disintegration moraines. These soils formed in a loamy eolian mantle overlying sandy outwash. Permeability is moderately rapid in the loamy part and rapid in the sandy lower part. Slopes range from 0 to 35 percent.

Typical pedon of Stutts sandy loam, in an area of Stutts-Kalkaska complex, 0 to 6 percent slopes; 1,400 feet east and 500 feet north of the southwest corner of sec. 35, T. 44 N., R. 19 W., Munising Township, Alger County, Michigan; USGS Tie Lake, Michigan, topographic quadrangle; lat. 46 degrees 09 minutes 37 seconds N. and long. 86 degrees 39 minutes 02 seconds W., NAD 27:

Oa—0 to 1 inch (0 to 1 cm); highly decomposed plant material, black (10YR 2.5/1) broken face; many very fine to coarse roots; abrupt smooth boundary.

A—1 to 2 inches (1 to 6 cm); sandy loam, very dark brown (7.5YR 2.5/2) broken face; moderate fine granular structure; friable; many very fine to coarse roots; few very fine vesicular pores; very strongly acid; abrupt broken boundary.

E—2 to 7 inches (6 to 19 cm); sandy loam, reddish gray (5YR 5/2) broken face, light gray (5YR 7/1) dry; moderate very fine subangular blocky and moderate fine subangular blocky structure; friable; many very fine to coarse roots; few very fine vesicular pores; very strongly acid; abrupt wavy boundary.

Bhs—7 to 9 inches (19 to 24 cm); sandy loam, dark reddish brown (5YR 3/2) broken face; moderate fine subangular blocky structure; friable; many very fine to coarse roots; few very fine vesicular pores; very strongly acid; clear wavy boundary.

Bs1—9 to 13 inches (24 to 33 cm); fine sandy loam, dark brown (7.5YR 3/4) broken face; moderate fine subangular blocky structure; friable; many very fine to medium and few coarse roots; dark reddish brown (5YR 3/3) and reddish brown (5YR 4/4), strongly cemented ortstein occupies 38 percent of the horizon; ortstein extends to a depth of 22 inches and occurs as discontinuous tongues 7 to 20 inches apart and 4 to 10 inches wide; few very fine vesicular pores; strongly acid; clear wavy boundary.

Bs2—13 to 19 inches (33 to 48 cm); loamy fine sand, strong brown (7.5YR 4/6) broken face; weak fine subangular blocky and weak medium subangular blocky structure; friable; 1 percent nonflat gravel; many very fine to medium and few coarse roots; few very fine vesicular pores; strongly acid; gradual wavy boundary.

2BC—19 to 33 inches (48 to 85 cm); sand, light brown (7.5YR 6/4) broken face; single grain; loose; few very fine and fine roots; strongly acid; gradual wavy boundary.

2C—33 to 80 inches (85 to 203 cm); sand, pale brown (10YR 6/3) broken face; single grain; loose; 4 percent nonflat gravel; moderately acid.

Sultz Series

The Sultz series consists of very deep, well drained soils on outwash plains. These soils formed in sandy glaciofluvial deposits underlain by stratified loamy lacustrine material. Permeability is rapid in the sandy upper part and moderately slow to moderately rapid in the loamy lower part. Slopes range from 0 to 15 percent.

Typical pedon of Sultz fine sand, in an area of Rubicon-Sultz complex, 0 to 6 percent slopes; 1,300 feet west and 1,600 feet south of the northeast corner of sec. 18, T. 42 N., R. 17 W., Inwood Township, Schoolcraft County, Michigan; USGS Thunder Lake, Michigan, topographic quadrangle; lat. 46 degrees 02 minutes 12 seconds N. and long. 86 degrees 28 minutes 27 seconds W., NAD 27:

Oi—0 to 1 inch; slightly decomposed forest litter.

A—1 to 2 inches; black (7.5YR 2.5/1) fine sand, dark gray (7.5YR/4/1) dry; weak very fine granular structure; very friable; many fine and common medium and coarse roots; extremely acid; abrupt wavy boundary.

E—2 to 6 inches; light brown (7.5YR 6/3) fine sand, pinkish gray (7.5YR 7/2) dry; weak medium subangular blocky structure; very friable; many fine and common medium and coarse roots; extremely acid; clear irregular boundary.

Bs1—6 to 11 inches; reddish brown (5YR 4/4) fine sand; weak medium subangular blocky structure; very friable; common fine and medium roots; about 18 percent of the horizon is moderately cemented ortstein; strongly acid; clear wavy boundary.

Bs2—11 to 18 inches; strong brown (7.5YR 5/6) fine sand; weak medium subangular blocky structure; very friable; few fine roots; about 18 percent of the horizon is moderately cemented ortstein; strongly acid; clear wavy boundary.

BC—18 to 43 inches; brown (7.5YR 5/4) fine sand; weak coarse subangular blocky structure; very friable; few fine roots; moderately acid; abrupt wavy boundary.

C1—43 to 51 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; moderately acid; abrupt wavy boundary.

2C2—51 to 58 inches; stratified, reddish brown (5YR 5/4) silt loam and brown (7.5YR 5/4) fine sand; massive with moderately expressed thick platiness inherent from deposition; friable; common very fine and fine vesicular pores; strongly acid; abrupt wavy boundary.

2C3—58 to 80 inches; stratified, reddish brown (5YR 5/4) silt loam and brown (7.5YR 5/4) loamy very fine sand; massive with weakly expressed thin platiness inherent from deposition; friable or very friable; strongly acid.

Tawas Series

The Tawas series consists of very deep, very poorly drained soils in depressions and drainageways on outwash plains, ground moraines, and disintegration moraines. These soils formed in organic material 16 to 50 inches thick overlying sandy deposits. Permeability is moderately slow to moderately rapid in the organic material and rapid in the sandy part. Slopes range from 0 to 2 percent.

Typical pedon of Tawas mucky peat, in an area of Carbondale-Lupton-Tawas soils; 1,500 feet north and 1,200 feet west of the southeast corner of sec. 4, T. 49 N., R. 13 W., Burt Township, Alger County, Michigan; USGS Grand Marais, Michigan, topographic quadrangle; lat. 46 degrees 39 minutes 52.29 seconds N. and long. 85 degrees 55 minutes 44.10 seconds W., NAD 27:

Oe—0 to 2 inches; dark brown (7.5YR 3/3) mucky peat; about 80 percent fiber, 35 percent rubbed; weak thin platy structure; very friable; many very fine to coarse roots; very strongly acid; clear smooth boundary.

Oa1—2 to 9 inches; black (10YR 2/1) muck; about 25 percent fiber, 5 percent rubbed; weak thick platy structure; very friable; few very fine to coarse roots; common woody fragments 2 millimeters to 10 inches thick throughout; strongly acid; gradual smooth boundary.

Oa2—9 to 23 inches; dark grayish brown (10YR 3/2) muck; about 15 percent fiber, 5 percent rubbed; massive; very friable; common woody fragments 2 millimeters to 10 inches thick throughout; strongly acid; abrupt smooth boundary.

2C—23 to 80 inches; brown (10YR 5/3) sand; single grain; loose; moderately acid.

Trenary Series

The Trenary series consists of very deep, well drained, moderately permeable soils on ground moraines and end moraines. These soils formed in loamy till. Slopes range from 1 to 35 percent.

Typical pedon of Trenary fine sandy loam, 2 to 6 percent slopes; 190 feet south and 1,700 feet west of the northeast corner of sec. 4, T. 43 N., R. 21 W., Masonville Township, Delta County, Michigan; USGS Trenary, Michigan, topographic quadrangle; lat. 46 degrees 09 minutes 30 seconds N. and long. 86 degrees 56 minutes 06 seconds W., NAD 27:

A—0 to 2 inches; very dark gray (5YR 3/1) fine sandy loam; weak medium granular structure; friable; about 2 percent gravel; moderately acid; abrupt wavy boundary.

E—2 to 6 inches; brown (7.5YR 5/2) fine sandy loam, pinkish gray (7.5YR 6/2) dry; weak fine subangular blocky structure; friable; about 2 percent gravel; moderately acid; abrupt wavy boundary.

Bhs—6 to 12 inches; dark reddish brown (5YR 3/3) fine sandy loam; weak medium subangular blocky structure; friable; about 3 percent gravel; strongly acid; clear wavy boundary.

Bs—12 to 17 inches; reddish brown (5YR 4/4) fine sandy loam; moderate medium subangular blocky structure; friable; about 3 percent gravel; strongly acid; abrupt irregular boundary.

E´—17 to 26 inches; reddish brown (5YR 5/3) sandy loam; weak thick platy structure; friable; few fine vesicular pores; about 2 percent gravel and 2 percent cobbles; strongly acid; abrupt irregular boundary.

Bt—26 to 37 inches; dark reddish brown (2.5YR 3/4) sandy clay loam; moderate coarse subangular blocky structure; firm; continuous clay films in pores, on faces

of peds, and in root channels; about 2 percent gravel and 2 percent cobbles; moderately acid; abrupt wavy boundary.

C1—37 to 48 inches; reddish brown (2.5YR 4/4) sandy loam; weak medium subangular blocky structure; friable; about 2 percent gravel and 3 percent cobbles; neutral; clear wavy boundary.

C2—48 to 80 inches; reddish brown (2.5YR 4/4) sandy loam; weak medium subangular blocky structure; friable; about 2 percent gravel and 3 percent cobbles; slight effervescence; moderately alkaline.

Vilas Series

The Vilas series consists of very deep, excessively drained, rapidly permeable soils on outwash plains. These soils formed in sandy glaciofluvial deposits. Slopes range from 0 to 15 percent.

Typical pedon of Vilas loamy sand, 0 to 6 percent slopes; 2,350 feet east and 450 feet south of the northwest corner of sec. 9, T. 46 N., R. 12 W., Columbus Township, Luce County, Michigan; USGS Tahquamenon Lakes, Michigan, topographic quadrangle; lat. 46 degrees 24 minutes 11 seconds N. and long. 85 degrees 48 minutes 50 seconds W., NAD 27:

A—0 to 3 inches; black (7.5YR 2.5/1) loamy sand, dark gray (7.5YR 4/1) dry; weak fine subangular blocky structure; very friable; common fine to coarse roots; about 1 percent gravel; extremely acid; abrupt wavy boundary.

E—3 to 5 inches; brown (7.5YR 4/2) loamy sand, pinkish gray (7.5YR 6/2) dry; weak fine subangular blocky structure; very friable; common fine to coarse roots; about 1 percent gravel; extremely acid; abrupt wavy boundary.

Bs1—5 to 9 inches; brown (7.5YR 4/4) loamy sand; weak fine and medium subangular blocky structure; very friable; few fine roots; about 2 percent gravel; very strongly acid; clear wavy boundary.

Bs2—9 to 20 inches; strong brown (7.5YR 4/6) sand; weak fine and medium subangular blocky structure; very friable; few fine roots; about 2 percent gravel and 1 percent cobbles; strongly acid; gradual wavy boundary.

C1—20 to 55 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; about 2 percent gravel and 1 percent cobbles; strongly acid; abrupt wavy boundary.

C2—55 to 63 inches; yellowish brown (10YR 5/4) coarse sand; single grain; loose; about 4 percent gravel and 2 percent cobbles; strongly acid; abrupt wavy boundary.

C3—63 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; about 2 percent gravel; slightly acid.

Wainola Series

The Wainola series consists of very deep, somewhat poorly drained, rapidly permeable soils on outwash plains and lake plains. These soils formed in sandy glaciofluvial or glaciolacustrine deposits. Slopes range from 0 to 3 percent.

Typical pedon of Wainola fine sand, in an area of Neconish-Wainola-Kinross complex, 0 to 6 percent slopes; 2,200 feet north and 200 feet west of the southeast corner of sec. 6, T. 34 N., R. 25 W., Ingallston Township, Menominee County, Michigan; USGS Arthur Bay, Michigan, topographic quadrangle; lat. 45 degrees 21 minutes 59 seconds N. and long. 87 degrees 25 minutes 55 seconds W., NAD 27:

Oa—0 to 2 inches; well decomposed forest litter.

E—2 to 12 inches; pinkish gray (7.5YR 6/2) fine sand; single grain; loose; common fine and coarse roots; strongly acid; abrupt wavy boundary.

Bs1—12 to 18 inches; reddish brown (5YR 4/4) fine sand; weak fine subangular blocky structure; very friable; common fine and medium roots between columns of ortstein; columns of weakly cemented, dark reddish brown (5YR 3/4) ortstein extend into the Bs2 horizon; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation throughout; very strongly acid; gradual wavy boundary.

Bs2—18 to 27 inches; brown (7.5YR 4/4) fine sand; weak fine subangular blocky structure; very friable; few fine and medium roots between columns of ortstein; columns of weakly cemented, dark brown (7.5YR 3/4) ortstein extend into this horizon from the Bs1 horizon; common fine faint strong brown (7.5YR 5/6) masses of iron accumulation throughout; very strongly acid; gradual wavy boundary.

BC—27 to 41 inches; brown (7.5YR 5/4) fine sand; single grain; loose; few fine roots; common fine distinct reddish yellow (7.5YR 6/6) masses of iron accumulation throughout; strongly acid; clear wavy boundary.

C—41 to 80 inches; brown (7.5YR 5/2) very fine sand; single grain; loose; strongly acid.

Wallace Series

The Wallace series consists of very deep, well drained soils on dunes, lake plains, and outwash plains. These soils formed in sandy eolian, glaciofluvial, or glaciolacustrine deposits. The subsoil has ortstein layers. Permeability is moderate or moderately rapid in the ortstein layers and rapid in the rest of the profile. Slopes range from 0 to 60 percent.

Typical pedon of Wallace sand, 0 to 6 percent slopes; 100 feet west and 950 feet north of the southeast corner of sec. 12, T. 43 N., R. 9 W., Garfield Township, Mackinac County, Michigan; USGS Garnet, Michigan, topographical quadrangle; lat. 46 degrees 07 minutes 56 seconds N. and long. 85 degrees 21 minutes 48 seconds W., NAD 27:

Oe—0 to 2 inches; partially decomposed forest litter.

E—2 to 10 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/2) dry; weak medium subangular blocky structure; very friable; many fine to coarse roots; very strongly acid; abrupt wavy boundary.

Bhs—10 to 11 inches; dark reddish brown (5YR 3/2) sand; weak fine subangular blocky structure; very friable; many fine to coarse roots; very strongly acid; abrupt irregular boundary.

Bhsm—11 to 21 inches; dark brown (7.5YR 3/3) sand; massive; extremely firm; few fine and medium roots; ortstein occupies 95 percent of the horizon and is strongly cemented; the ortstein occurs as a nearly continuous layer and as tongues that extend to a depth of 52 inches; strongly acid; clear irregular boundary.

Bsm—21 to 26 inches; dark brown (7.5YR 4/4) sand; massive; very firm; few fine and medium roots; ortstein occupies 95 percent of the horizon and is moderately cemented; the ortstein occurs as a nearly continuous layer and as tongues that extend to a depth of 55 inches; strongly acid; clear irregular boundary.

BC—26 to 59 inches; brownish yellow (10YR 6/6) sand; single grain; loose; few fine roots; moderately acid; gradual wavy boundary.

C—59 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; moderately acid.

Wormet Series

The Wormet series consists of very deep, moderately well drained soils on ground moraines and outwash plains. These soils formed in loamy over sandy glaciofluvial

deposits. Permeability is moderate or moderately rapid in the loamy cap and rapid or very rapid in the sandy material. Slopes range from 0 to 3 percent.

Typical pedon of Wormet fine sandy loam, 0 to 3 percent slopes; 1,200 feet west and 1,980 feet south of the northeast corner of sec. 26, T. 43 N., R. 13 W., Mueller Township, Schoolcraft County, Michigan; USGS Blaney Park, Michigan, topographic quadrangle; lat. 46 degrees 05 minutes 46 seconds N. and long. 85 degrees 53 minutes 30 seconds W., NAD 27:

Oe—0 to 2 inches; partially decomposed forest litter.

E—2 to 5 inches; brown (7.5YR 5/2) fine sandy loam, gray (7.5YR 6/1) dry; moderate medium subangular blocky structure; friable; common fine to coarse roots; very strongly acid; abrupt smooth boundary.

Bhs—5 to 7 inches; dark brown (7.5YR 3/3) fine sandy loam; moderate medium subangular blocky structure; friable; common fine to coarse roots; about 2 percent cobbles; very strongly acid; clear broken boundary.

Bs1—7 to 12 inches; dark brown (7.5YR 3/4) fine sandy loam; moderate medium subangular blocky structure; friable; common medium distinct strong brown (7.5YR 4/6) masses of iron accumulation; common fine to coarse roots; about 2 percent cobbles; very strongly acid; gradual wavy boundary.

2Bs2—12 to 23 inches; brown (7.5YR 4/3) loamy sand; weak medium subangular blocky structure; very friable; common medium faint strong brown (7.5YR 4/6) masses of iron accumulation; common fine to coarse roots; about 2 percent cobbles; strongly acid; gradual wavy boundary.

2C1—23 to 35 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few fine to coarse roots; about 2 percent cobbles; strongly acid; gradual wavy boundary.

2C2—35 to 80 inches; brown (10YR 5/3) sand; single grain; loose; about 2 percent cobbles; moderately acid.

Wurtsmith Series

The Wurtsmith series consists of very deep, moderately well drained, rapidly permeable soils on low dunes and outwash plains. These soils formed in sandy outwash deposits. Slopes range from 0 to 6 percent.

Typical pedon of Wurtsmith sand, in an area of Wurtsmith-Tawas-Deford complex, 0 to 6 percent slopes; 396 feet south and 660 feet west of the northeast corner of sec. 32, T. 41 N., R. 16 W., Thompson Township, Schoolcraft County, Michigan; USGS Manistique West, Michigan, topographic quadrangle; lat. 45 degrees 54 minutes 33 seconds N. and long. 86 degrees 19 minutes 34 seconds W., NAD 27:

A—0 to 2 inches; very dark gray (7.5YR 3/1) sand, brown (7.5YR 5/2) dry; weak fine granular structure; very friable; common fine to coarse roots; moderately acid; abrupt wavy boundary.

E—2 to 7 inches; grayish brown (10YR 5/2) sand, light gray (10YR 7/2) dry; weak medium subangular blocky structure; very friable; common fine to coarse roots; strongly acid; clear wavy boundary.

Bw—7 to 15 inches; yellowish brown (10YR 5/6) sand; weak medium subangular blocky structure; very friable; common fine to coarse roots; moderately acid; clear wavy boundary.

BC—15 to 26 inches; yellowish brown (10YR 5/4) sand; single grain; loose; about 15 percent of the horizon is moderately cemented ortstein; few medium and fine roots; moderately acid; gradual wavy boundary.

C—26 to 80 inches; brown (10YR 5/3) sand; single grain; loose; few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the lower part of the horizon; neutral.

Yalmer Series

The Yalmer series consists of very deep, moderately well drained soils on ground moraines. These soils formed in sandy glaciofluvial deposits over loamy till. They have a fragipan. Permeability is rapid in the sandy upper part of the profile, very slow in the fragipan, and moderate in the underlying loamy material. Slopes range from 1 to 6 percent.

Typical pedon of Yalmer loamy sand, in an area of Munising-Yalmer-Frohling complex, calcareous substratum, 1 to 6 percent slopes; 1,500 feet east and 2,200 feet north of the southwest corner of sec. 29, T. 47 N., R. 17 W., Munising Township, Alger County, Michigan; USGS Melstrand, Michigan, topographic quadrangle; lat. 46 degrees 26 minutes 17.44 seconds N. and long. 86 degrees 27 minutes 46.66 seconds W., NAD 27:

Oa—0 to 1 inch; partially decomposed forest litter.

A—1 to 2 inches; black (7.5YR 2.5/1) loamy sand, dark gray (7.5YR 4/1) dry; weak medium granular structure; very friable; many very fine to very coarse roots; about 4 percent gravel and 2 percent cobbles; very strongly acid; abrupt smooth boundary.

E—2 to 5 inches; brown (7.5YR 4/2) loamy sand, pinkish gray (7.5YR 6/2) dry; weak medium platy structure parting to weak fine subangular blocky; very friable; many very fine to very coarse roots; about 4 percent gravel and 2 percent cobbles; very strongly acid; clear wavy boundary.

Bhs—5 to 16 inches; dark brown (7.5YR 3/3) loamy sand; weak fine subangular blocky structure; very friable; many very fine to very coarse roots; few very fine vesicular pores; about 8 percent gravel and 2 percent cobbles; very strongly acid; gradual wavy boundary.

Bs—16 to 28 inches; dark brown (7.5YR 3/4) gravelly loamy sand; weak fine subangular blocky structure; very friable; common very fine to coarse roots; few very fine vesicular pores; about 12 percent gravel and 4 percent cobbles; strongly acid; abrupt wavy boundary.

2(E/B)x—28 to 36 inches; reddish brown (5YR 5/3) loamy sand (E), light gray (5YR 7/1) dry; occupies about 65 percent of the horizon surrounding peds of reddish brown (5YR 4/4) fine sandy loam (Bt); weak very thick platy structure; very firm; few very fine and fine roots in cracks; common very fine vesicular pores; few distinct reddish brown (5YR 4/3) clay films on faces of peds; about 6 percent gravel, 4 percent cobbles, and 1 percent stones; moderately acid; gradual wavy boundary.

2(B/E)x—36 to 56 inches; reddish brown (5YR 4/4) fine sandy loam (Bt); occupies about 70 percent of the horizon surrounded by tongues of reddish brown (5YR 5/3) loamy sand (E), light gray (5YR 7/1) dry; weak very thick platy structure; very firm; common very fine vesicular pores; few distinct reddish brown (5YR 4/3) clay films on faces of peds; few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; about 6 percent gravel, 4 percent cobbles, and 1 percent stones; slightly acid; abrupt smooth boundary.

3C—56 to 80 inches; yellowish brown (10YR 5/4) gravelly fine sandy loam; massive with weakly expressed platiness inherent from deposition; friable; few very fine vesicular pores; few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; about 15 percent gravel, 6 percent cobbles, and 3 percent stones; slightly effervescent; neutral.

Formation of the Soils

This section describes the factors of soil formation and relates them to the soils in the survey area. It also describes the processes of soil formation.

Factors of Soil Formation

Soil forms through the interaction of five major factors. These are the physical, chemical, and mineral composition of the parent material; the climate under which the soil material has accumulated and has existed since accumulation; the plant and animal life on and in the soil; the relief, or topography; and the length of time that the processes of soil formation have acted on the parent material (Jenny, 1941).

Climate and plant and animal life are the active forces of soil formation. They slowly change the parent material into a natural body of soil that has genetically related layers, called horizons. The effects of climate and plant and animal life are conditioned by relief. The nature of the parent material affects the kind of soil profile that is formed and in extreme cases determines it almost entirely. Finally, time changes the parent material into a soil. Generally, a long time is required for the formation of distinct horizons.

The factors of soil formation are so closely interrelated in their effects on the soil that few generalizations can be made about the effect of any one factor unless conditions are specified for the others. Many of the processes of soil formation are unknown.

Parent Material

Parent material is the unconsolidated mass in which a soil forms. The parent material of the soils in Schoolcraft County was deposited by glaciers or by meltwater from the glaciers. Some of this material was subsequently reworked by water and wind. The glaciers covered the county about 12,000 years ago. Parent material determines the chemical and mineralogical composition of the soil. Although the soils in the survey area have parent material of common glacial origin, the properties of the parent material vary greatly, sometimes within a small area, depending on how the material was deposited. The dominant parent materials in Schoolcraft County are glacial till, outwash material, lake sediment, alluvium, or organic material.

Till is material that was deposited directly by glaciers with a minimum of water action. It consists of a mixture of particles of different sizes. The small pebbles in till have sharp corners, indicating that they have not been worn by water. The till in Schoolcraft County generally is calcareous sandy loam and loam. Trenary soils formed in till. Typically, these soils are loamy and have moderately developed structure.

Outwash material was deposited by running water from melting glaciers. The size of the particles that make up outwash material depends on the speed of the water that carried them. When the water slows down, the coarser particles are deposited. The finer particles, such as very fine sand, silt, and clay, are carried by slowly moving water. Outwash deposits generally consist of layers of particles of similar size, such as sand, coarse sand, and gravel. Rubicon soils are examples of soils that formed in outwash material.

Lake sediment is material that settled from still or slowly moving, deep lake water and from shallow, high-energy water near shorelines. Lake sediments are well sorted, and the size of the particles depends on the speed of the water that suspended them. Sultz soils are examples of sandy soils that formed in material deposited in sandbars on a shallow lake bottom. Auger soils are examples of loamy soils that formed in material deposited on a deep lake bottom.

Alluvial material has been deposited by floodwater of present streams in recent time. The texture of this material depends on the speed of the water that deposited the material. Pelkie soils are alluvial soils.

Organic material is made up of plant remains. After the glaciers receded from the area, water was left standing in depressions on outwash plains, flood plains, and till plains. Grasses and sedges that grew around the edge of these depressions died. Because of the wetness, when the plants died, their remains did not decompose but accumulated around the edge of the depressions. Later, water-tolerant trees grew in these areas. As these trees died, their residue became part of the organic accumulation. Consequently, the depressions were eventually filled with organic material and developed into areas of muck. Tawas soils are examples of soils that formed in organic material.

Plant and Animal Life

Green plants have been the principal organisms influencing the soils in Schoolcraft County. Bacteria, fungi, earthworms, and humans also have been important. The chief contribution of plant and animal life is the addition of organic matter and nitrogen to the soil. The kind of organic material on and in the soil depends on the kinds of plants that grew on the soil. The residue of these plants accumulates on the surface of the soil. It decays and eventually becomes organic matter. Plant roots provide channels for the downward movement of water through the soil and add organic material to the soil as they decay. Bacteria in the soil help to break down the organic material into a form that can be used by plants.

The vegetation in Schoolcraft County was a mixture of coniferous and deciduous forest. Differences in natural soil drainage and in parent material affect the composition of forests.

In general, the well drained upland soils, such as Rubicon and Rousseau soils, were covered with red oak and white pine. Kalkaska soils were covered with sugar maple and American beech. The very poorly drained soils were covered with cedar, black spruce, and aspen. Lupton and Tawas soils, which formed under wet conditions, contain a considerable amount of organic matter.

Climate

Climate is important in the formation of soils. It determines the kind of plant and animal life on and in the soil and determines the amount of water available for the weathering of minerals and the transporting of soil materials. Through its influence on soil temperature, climate determines the rate of chemical reactions in the soil. These climatic influences generally affect areas larger than a county.

The climate in Schoolcraft County is cool and humid. Presumably, it is similar to the climate under which the soils formed. The soils in this survey area differ from soils that formed in a dry, warm climate or from those that formed in a moist, hot climate. Climate is uniform throughout the county, but its effect is modified locally by the proximity to Lake Michigan. The minor differences in the soils in Schoolcraft County are partially the result of climatic differences.

Relief

Relief, or topography, has had a marked influence on the formation of the soils in Schoolcraft County through its influence on natural drainage, erosion, plant cover, and soil temperature. In this survey area, slopes range from 0 to 60 percent. Natural drainage classes range from excessively drained on hilltops to very poorly drained in depressions.

Relief influences the formation of soil by affecting runoff and drainage. Drainage in turn, through its effect on aeration of the soil, determines the color of the soil. Runoff is most rapid on the steeper slopes, but in low areas, water can be temporarily ponded.

Water and air move freely through well drained soils but slowly through very poorly drained soils. In soils that are well aerated, the iron and aluminum compounds that give most soils their color are brightly colored and are oxidized. Poorly aerated soils are dull gray and mottled. Hiawatha and Menominee soils are examples of well drained, well aerated soils; Ensley and Deford soils are examples of poorly drained, poorly aerated soils. All of these soils formed in similar parent material.

Time

Generally, a long time is required for the development of distinct horizons in a soil. The differences in the length of time that the parent material has been in place are commonly reflected in the degree of development of the soil profile. Some soils form rapidly; others form slowly.

The soils of Schoolcraft County range from young to mature. The glacial deposits in which many of the soils formed have been exposed to soil-forming factors long enough for distinct horizons to develop. Some soils that formed in recent alluvial sediments have not been in place long enough for the development of distinct horizons. Pelkie and Arnheim soils, which formed in alluvial materials, are young soils. Trenary and Cookson soils show the effects of leaching of lime from the soil profile, which has taken place over a long period of time.

Processes of Soil Formation

The processes responsible for the development of soil horizons from unconsolidated parent material are referred to as soil genesis. Soil morphology describes the physical, chemical, and biological properties of these horizons.

Several processes were involved in the development of soil horizons in Schoolcraft County. These processes include the accumulation of organic matter; the leaching of lime (calcium carbonate) and other bases; the reduction and transfer of iron; and the formation and translocation of clay minerals. In most soils, more than one of these processes have been active in the development of horizons.

Organic matter accumulates at the surface to form an A horizon. If the soil is plowed, the A horizon is mixed into a plow layer, or Ap horizon. In the soils of Schoolcraft County, the content of organic matter in the surface layer ranges from high to low. For example, Gulliver soils have a high content of organic matter in the surface layer, and Rubicon soils have a low content of organic matter.

Leaching of carbonates and other bases has occurred in most of the soils. Soil scientists generally agree that leaching of bases in soils precedes the translocation of clay minerals. Many of the soils in Schoolcraft County are moderately or strongly leached. Gilchrist soils are leached of carbonates to a depth of 24 to 40 inches. Munising soils are leached to a depth of more than 60 inches. This difference in the depth of leaching is a result of differences in time, relief, and parent material.

The reduction and transfer of iron, a process called gleying, is evident in the somewhat poorly drained, poorly drained, and very poorly drained soils. The gray or

dull color in the subsoil indicates the reduction and loss of iron. Deford soils are examples of soils in which the gleying processes are evident.

The translocation of clay minerals has contributed to horizon development. An eluviated, or leached, E horizon above an illuviated B horizon has a lower content of clay than the B horizon and typically is lighter in color. The B horizon typically has an accumulation of clay and clay films in pores and on the faces of peds. The soils displaying this translocation of clay were probably leached of carbonates and soluble salts to a considerable extent before the translocation of clay took place. The leaching of bases and the translocation of clays are among the more important processes of horizon differentiation. In Trenary soils, translocated clay in the form of clay films has accumulated in the B horizon.

In some soils, iron, aluminum, and humus have moved from the surface layer to the B horizon. The B horizon in such soils commonly is dark brown or dark reddish brown. Heinz and Wormet soils are examples of soils in which translocated iron, aluminum, and humus have affected the B horizon.

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the "National Soil Survey Handbook" (available in local offices of the Natural Resources Conservation Service or on the Internet).

ABC soil. A soil having an A, a B, and a C horizon.

Ablation till. Loose, relatively permeable earthy material deposited during the downwasting of nearly static glacial ice, either contained within or accumulated on the surface of the glacier.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial cone. A semiconical type of alluvial fan having very steep slopes. It is higher, narrower, and steeper than a fan and is composed of coarser and thicker layers of material deposited by a combination of alluvial episodes and (to a much lesser degree) landslides (debris flow). The coarsest materials tend to be concentrated at the apex of the cone.

Alluvial fan. A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl. A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

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 toward which a slope faces. Also called slope aspect.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at

wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp. A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope (geomorphology). A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding plane. A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology) from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.

Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. An informal term loosely applied to various portions of a flood plain.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks. A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps. See Terracettes.

Cement rock. Shaly limestone used in the manufacture of cement.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. See Redoximorphic features.

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.

Clayey textures (in map unit descriptions). Equipment use and other uses are limited because of the clayey textures in the surface layer and subsoil.

Claypan. A dense, compact, slowly permeable subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

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. See Redoximorphic features.

Conglomerate. A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat). A type of limnic layer composed predominantly of fecal material derived from aquatic animals.

Corrosion (geomorphology). A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations). Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cryoturbate. A mass of soil or other unconsolidated earthy material moved or disturbed by frost action. It is typically coarser than the underlying material.

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 caving (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delta. A body of alluvium having a surface that is fan shaped and nearly flat; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Drift. A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains, eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.

Droughtiness (in map unit descriptions). The soil holds too little water for plants during dry periods.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact till that has a core of bedrock or drift. It commonly has a blunt nose facing the direction from

which the ice approached and a gentler slope tapering in the other direction. The longer axis is parallel to the general direction of glacier flow. Drumlins are products of streamline (laminar) flow of glaciers, which molded the subglacial floor through a combination of erosion and deposition.

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.

Dune. A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.

Earthy fill. See Mine spoil.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit. Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A surficial lag concentration or layer of gravel and other rock fragments that remains on the soil surface after sheet or rill erosion or wind has removed the finer soil particles and that tends to protect the underlying soil from further erosion.

Erosion surface. A land surface shaped by the action of erosion, especially by running water.

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. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Esker. A long, narrow, sinuous, steep-sided ridge of stratified sand and gravel deposited as the bed of a stream flowing in an ice tunnel within or below the ice (subglacial) or between ice walls on top of the ice of a wasting glacier and left behind as high ground when the ice melted. Eskers range in length from less than a kilometer to more than 160 kilometers and in height from 3 to 30 meters.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan remnant. A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, that have been either dissected or partially buried.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain landforms. A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

Flood-plain splay. A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.

Flood-plain step. An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.

Fluvial. Of or pertaining to rivers or streams; produced by stream or river action.

Foothills. A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).

Footslope. The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are bedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

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.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope (geomorphology). A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A generic term for an elevated area 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. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope. A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

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.

L horizon.—A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

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 that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology). A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream. A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. See Redoximorphic features.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.
Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.
Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.
Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.
Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.
Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame. A low mound, knob, hummock, or short irregular ridge composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a supraglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice.

Karst (topography). A kind of topography that formed in limestone, gypsum, or other soluble rocks by dissolution and that is characterized by closed depressions, sinkholes, caves, and underground drainage.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Ksat. 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 nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace. A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Lamellae. Thin layers in the soil where illuviated clay particles have accumulated. These layers generally form in sandy soils and are commonly irregular or discontinuous.

Landslide. A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Lodgment till. A basal till commonly characterized by compact fissile structure and containing stones oriented with their long axes generally parallel to the direction of ice movement.

Loess. Material transported and deposited by wind and consisting dominantly of silt-sized particles.

Low strength. The soil is not strong enough to support loads.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.

Mass movement. A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.

Masses. See Redoximorphic features.

Meander belt. The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.

Meander scar. A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.

Meander scroll. One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.

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 at depth in the earth's crust. Nearly all such rocks are crystalline.

Mine spoil. An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

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. A kind of map unit 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. In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties

of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mudstone. A blocky or massive, fine grained sedimentary rock in which the proportions of clay and silt are approximately equal. Also, a general term for such material as clay, silt, claystone, siltstone, shale, and argillite and that should be used only when the amounts of clay and silt are not known or cannot be precisely identified.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. See Redoximorphic features.

Nose slope (geomorphology). A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient loss (in map unit descriptions). The soil may lose nutrients, fertilizers, or pesticides as a result of either surface-water runoff or percolation.

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

Ortstein. A cemented spodic horizon in which the cementing material consists of illuviated sesquioxides, mostly iron and organic matter.

Outwash. Stratified and sorted sediments (chiefly sand and gravel) removed or "washed out" from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.

Outwash plain. An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permafrost. Ground, soil, or rock that remains at or below 0 degrees C for at least 2 years. It is defined on the basis of temperature and is not necessarily frozen.

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

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology). A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Ponding (in map unit descriptions). The water table is at or above the surface.

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.

Pore linings. See Redoximorphic features.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Red beds. Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations. See Redoximorphic features.

Redoximorphic depletions. See Redoximorphic features.

Redoximorphic features. Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
   A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
   B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
   C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
   A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
   B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

Regolith. All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief. The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Restricted permeability (in map unit descriptions). The soil has a slowly or very slowly permeable layer within a depth of 80 inches.

Restrictive feature (in map unit descriptions). The soil has a layer that inhibits the movement of water and/or roots. Examples include bedrock, ortstein, and dense layers.

Rill. A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser. The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock fragments (in map unit descriptions). Equipment use and other uses are limited because of excess gravel or cobbles within a depth of 12 inches.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy textures (in map unit descriptions). Equipment use and other uses are limited because of sandy textures in the surface layer.

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.

Saturated hydraulic conductivity (Ksat). See Permeability.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Seasonal wetness (in map unit descriptions). Equipment use and other uses are limited because the water table is at a depth between 6 and 40 inches during some part of the year.

Sedimentary rock. A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

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.

Sesquioxide. An oxide containing three atoms of oxygen and two of another element (e.g., aluminum oxide).

Severe wetness (in map unit descriptions). Equipment use and other uses are limited because the water table is at or near the surface during some part of the year.

Shale. Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

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 convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

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 (geomorphology). A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

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. An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

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.

Slope alluvium. Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil rutting (in map unit descriptions). Ruts form easily during the spring and other wet periods.

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.

Spodic horizon. A mineral soil horizon that is characterized by the illuvial accumulation of amorphous materials composed of aluminum and organic carbon with or without iron. The spodic horizon has a certain minimum thickness and a minimum quantity of extractable carbon plus iron plus aluminum in relation to its content of clay.

Stone line. In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during

preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsidence (in map unit descriptions). In organic soils, subsidence is a limitation if the organic material subsides more than 24 inches when the soils are drained.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus. Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.

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. An end moraine that marks the farthest advance of a glacier. It typically has the form of a massive arcuate or concentric ridge, or complex of ridges, and is underlain by till and other types of drift.

Terrace (conservation). An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphology). A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

Terracettes. Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.

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. Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.

Till plain. An extensive area of level to gently undulating soils underlain predominantly by till and bounded at the distal end by subordinate recessional or end moraines.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread. The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Tuff. A generic term for any consolidated or cemented deposit that is 50 percent or more volcanic ash.

Upland. An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Valley fill. The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Water erosion (in map unit descriptions). The soil is susceptible to erosion as a result of surface-water runoff.

Weathering. All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1961-90 at Manistique, Michigan, and at the Seney National Wildlife Refuge)

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
MANISTIQUE:											
January----	25.1	7.0	16.1	43	-19	0	1.76	0.74	2.63	4	17.3
February---	27.1	7.6	17.3	43	-21	0	1.34	.60	2.07	4	13.8
March------	35.9	17.2	26.5	54	-14	2	1.86	.86	2.71	3	8.6
April------	47.6	29.4	38.5	68	6	62	2.02	1.17	2.77	5	2.1
May--------	59.4	39.4	49.4	79	24	300	2.57	1.24	3.73	5	.0
June-------	68.7	47.8	58.3	88	32	539	3.14	1.58	4.50	7	.0
July-------	75.0	54.4	64.7	90	39	762	2.62	1.43	3.67	5	.0
August-----	73.6	53.6	63.6	87	36	731	3.52	2.32	4.61	7	.0
September--	65.4	46.5	56.0	80	28	475	3.60	2.02	5.01	7	.0
October----	54.2	37.1	45.7	72	22	195	2.99	1.85	4.02	6	.6
November---	41.6	26.8	34.2	60	5	28	2.59	1.26	3.74	6	5.7
December---	29.6	13.9	21.7	48	-13	1	2.09	1.42	2.70	6	18.8
Yearly:											
Average---	50.3	31.7	41.0	---	---	---	---	---	---	---	---
Extreme---	97	-33	---	91	-23	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,095	30.10	18.94	34.06	65	66.9
SENEY NWR:											
January----	25.1	6.5	15.8	43	-24	0	2.04	1.32	2.70	7	32.6
February---	28.0	5.8	16.9	47	-27	0	1.43	.78	2.01	4	22.2
March------	37.3	14.7	26.0	57	-22	6	2.03	1.10	2.85	5	15.0
April------	51.4	29.6	40.5	75	5	114	2.08	1.24	2.83	5	4.0
May--------	65.7	40.1	52.9	88	23	408	2.86	1.64	3.95	6	.3
June-------	74.3	48.0	61.1	90	30	630	3.24	1.69	4.60	6	.0
July-------	80.4	53.8	67.1	95	38	834	3.04	1.60	4.30	5	.0
August-----	77.0	52.7	64.9	92	35	767	3.32	1.80	4.66	7	.0
September--	68.0	46.4	57.2	85	28	505	3.51	2.06	4.81	8	.1
October----	56.4	37.8	47.1	76	22	237	3.11	1.85	4.23	8	1.6
November---	41.5	27.2	34.3	62	5	35	2.81	1.61	3.87	8	13.6
December---	29.3	14.0	21.7	49	-17	2	2.30	1.67	2.88	9	31.4
Yearly:											
Average---	52.9	31.4	42.1	---	---	---	---	---	---	---	---
Extreme---	100	-41	---	96	-30	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,538	31.77	20.20	36.08	78	120.8

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Manistique, Michigan, and at the Seney National Wildlife Refuge)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
MANISTIQUE:			
Last freezing temperature in spring:			
1 year in 10 later than--	May 16	May 31	June 14
2 years in 10 later than--	May 9	May 24	June 7
5 years in 10 later than--	Apr. 26	May 11	May 25
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 9	Sept. 24	Sept. 2
2 years in 10 earlier than--	Oct. 16	Sept. 30	Sept. 9
5 years in 10 earlier than--	Oct. 30	Oct. 12	Sept. 23
SENEY NWR:			
Last freezing temperature in spring:			
1 year in 10 later than--	May 13	May 26	June 9
2 years in 10 later than--	May 7	May 20	June 4
5 years in 10 later than--	Apr. 24	May 9	May 25
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 9	Sept. 24	Sept. 7
2 years in 10 earlier than--	Oct. 15	Sept. 30	Sept. 13
5 years in 10 earlier than--	Oct. 26	Oct. 12	Sept. 25

Table 3.--Growing Season

(Recorded in the period 1961-90 at Manistique, Michigan, and at the Seney National Wildlife Refuge)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
MANISTIQUE:			
9 years in 10	159	130	86
8 years in 10	168	139	98
5 years in 10	186	156	120
2 years in 10	203	173	142
1 year in 10	212	182	154
SENEY NWR:			
9 years in 10	156	131	101
8 years in 10	166	140	109
5 years in 10	184	156	125
2 years in 10	202	172	141
1 year in 10	211	180	149

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
10B	Amadon-Rock outcrop complex, 1 to 6 percent slopes	4,909	0.6
11B	Kalkaska loamy sand, 0 to 6 percent slopes	4,792	0.6
12B	Rubicon sand, 0 to 6 percent slopes	46,047	5.9
12D	Rubicon sand, 6 to 15 percent slopes	10,593	1.4
12E	Rubicon sand, 15 to 35 percent slopes	6,662	0.9
12F	Rubicon sand, 35 to 60 percent slopes	974	0.1
13B	Kalkaska sand, 0 to 6 percent slopes	16,718	2.1
13D	Kalkaska sand, 6 to 15 percent slopes	9,435	1.2
13E	Kalkaska sand, 15 to 35 percent slopes	4,069	0.5
13F	Kalkaska sand, 35 to 60 percent slopes	1,006	0.1
16A	Paquin sand, 0 to 3 percent slopes	12,657	1.6
17A	Au Gres sand, 0 to 3 percent slopes	1,104	0.1
18	Kinross muck	9,234	1.2
19A	Au Gres-Deford complex, 0 to 3 percent slopes	6,506	0.8
20E	Rousseau-Neconish-Finch complex, 0 to 25 percent slopes	9,521	1.2
21B	Garlic sand, 0 to 6 percent slopes	13,562	1.7
21D	Garlic sand, 6 to 15 percent slopes	3,668	0.5
21E	Garlic sand, 15 to 35 percent slopes	4,478	0.6
22E	Rousseau-Neconish-Deford complex, 0 to 25 percent slopes	7,735	1.0
24B	Rousseau fine sand, 0 to 6 percent slopes	503	*
24D	Rousseau fine sand, 6 to 15 percent slopes	1,288	0.2
24E	Rousseau fine sand, 15 to 35 percent slopes	3,275	0.4
25B	Proper sand, 0 to 6 percent slopes	13,952	1.8
26A	Spot-Finch complex, 0 to 3 percent slopes	28,988	3.7
27A	Hendrie-Annanias complex, 0 to 3 percent slopes	3,549	0.5
30	Hendrie mucky peat	1,542	0.2
33	Pits, sand and gravel	510	*
34B	Liminga fine sand, 0 to 6 percent slopes	318	*
34E	Liminga fine sand, 15 to 35 percent slopes	504	*
36	Carbondale, Lupton, and Tawas soils	80,343	10.3
37	Dawson, Greenwood, and Loxley soils	30,949	4.0
43	Ensley muck	3,636	0.5
56B	Shuberts-Wurtsmith-Meehan complex, 0 to 6 percent slopes	788	0.1
61A	Ingalls-Caffey complex, 0 to 3 percent slopes	1,389	0.2
62B	McMillan-Greylock fine sandy loams, 1 to 6 percent slopes	5,986	0.8
62D	McMillan-Greylock fine sandy loams, 6 to 15 percent slopes	1,769	0.2
62E	Greylock-McMillan fine sandy loams, 15 to 35 percent slopes	773	*
63	Deford muck	24,016	3.1
65	Ausable, Deford, and Tawas mucks, frequently flooded	17,200	2.2
66	Markey mucky peat	97,547	12.5
67B	Pelkie, occasionally flooded-Deford, frequently flooded, complex, 0 to 4 percent slopes	6,564	0.8
68F	Deer Park sand, 25 to 60 percent slopes	1,411	0.2
69	Ruse mucky loam, rocky	860	0.1
70F	Deer Park-Deford-Tawas complex, 0 to 60 percent slopes	6,206	0.8
72	Spot peat	682	*
73B	Graveraet-Gulliver complex, 1 to 6 percent slopes	3,315	0.4
76A	Shuberts-Manistique complex, 0 to 3 percent slopes	628	*
78B	Heinz sandy loam, 0 to 6 percent slopes	561	*
80F	Deer Park-Dawson-Wainola complex, 0 to 60 percent slopes	995	0.1
84	Dawson-Kinross complex	4,111	0.5
86B	Wurtsmith-Tawas-Deford complex, 0 to 6 percent slopes	5,847	0.7
87B	Longrie-Amadon silt loams, 0 to 6 percent slopes, rocky	6,420	0.8
87D	Amadon-Longrie silt loams, 6 to 15 percent slopes, rocky	1,076	0.1
87E	Amadon-Longrie-Rock outcrop complex, 15 to 35 percent slopes	385	*
88B	Cookson-Amadon silt loams, 1 to 6 percent slopes	3,560	0.5
89B	Cookson-Trenary silt loams, 1 to 6 percent slopes	3,524	0.5
90	Chippeny muck	796	0.1
91	Cathro and Lupton soils	21,874	2.8
93A	Ruse-Ensign complex, 0 to 3 percent slopes	2,626	0.3
98B	Guardlake fine sandy loam, 0 to 6 percent slopes	321	*
98D	Guardlake fine sandy loam, 6 to 15 percent slopes	310	*
98E	Guardlake fine sandy loam, 15 to 35 percent slopes	218	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
116F	Udipsamments and Udorthents, nearly level to very steep	446	*
119	Landfill	109	*
120A	Charlevoix-Ensley complex, 0 to 3 percent slopes	9,375	1.2
122A	Wormet fine sandy loam, 0 to 3 percent slopes	1,078	0.1
123	Minocqua muck	1,017	0.1
125B	Stutts-Kalkaska complex, 0 to 6 percent slopes	6,349	0.8
125D	Stutts-Kalkaska complex, 6 to 15 percent slopes	1,334	0.2
125E	Stutts-Kalkaska complex, 15 to 35 percent slopes	538	*
131B	Furlong-Shingleton complex, 1 to 6 percent slopes	957	0.1
141A	Halfaday sand, 0 to 3 percent slopes	3,079	0.4
145B	Noseum fine sandy loam, 0 to 4 percent slopes	1,119	0.1
155B	Karlin loamy fine sand, 0 to 6 percent slopes	620	*
160B	Paquin-Finch sands, 0 to 6 percent slopes	4,295	0.5
218	Pits, quarry	2,012	0.3
219B	Cublake sand, 0 to 6 percent slopes	166	*
222	Histosols and Aquents, ponded	6,247	0.8
225B	Cusino loamy sand, 1 to 6 percent slopes	203	*
248B	Escanaba-Greylock complex, 1 to 6 percent slopes	366	*
249A	Iosco sand, 0 to 3 percent slopes	3	*
267A	Finch sand, 0 to 3 percent slopes	5,075	0.6
287B	Hiawatha fine sandy loam, 0 to 6 percent slopes	1,104	0.1
289B	Wallace sand, 0 to 6 percent slopes	840	0.1
289D	Wallace sand, 6 to 15 percent slopes	613	*
289E	Wallace sand, 15 to 35 percent slopes	1,476	0.2
294B	Munising-Yalmer-Frohling complex, calcareous substratum, 1 to 6 percent slopes	161	*
295E	Dillingham-Kalkaska complex, 15 to 35 percent slopes	27	*
355B	Springlake loamy sand, 0 to 6 percent slopes	3,029	0.4
366B	Gilchrist sand, 0 to 6 percent slopes	1,101	0.1
367B	Cozy fine sandy loam, 0 to 6 percent slopes	289	*
400B	Amadon-Rock outcrop complex, 1 to 6 percent slopes	37	*
401A	Ingalls sand, 0 to 3 percent slopes	61	*
490B	Pelkie, occasionally flooded-Arnheim, frequently flooded, complex, 0 to 4 percent slopes	4,845	0.6
491B	Neconish-Deford, rarely flooded-Wainola complex, 0 to 6 percent slopes	2,490	0.3
492D	Wurtsmith-Duck-Rubicon complex, 0 to 15 percent slopes	3,327	0.4
493A	Deford-Meehan-Seney complex, 0 to 3 percent slopes	9,526	1.2
498B	Bursaw-Beavertail complex, 0 to 6 percent slopes	783	0.1
505B	Graveraet fine sandy loam, 1 to 4 percent slopes	5,335	0.7
505D	Graveraet fine sandy loam, 6 to 15 percent slopes	261	*
512A	Growton fine sandy loam, 0 to 3 percent slopes	67	*
514B	Kalkaska sand, 0 to 6 percent slopes, burned	8,186	1.0
514D	Kalkaska sand, 6 to 15 percent slopes, burned	1,170	0.1
514E	Kalkaska sand, 15 to 50 percent slopes, burned	1,163	0.1
515B	Vilas loamy sand, 0 to 6 percent slopes	1,479	0.2
516A	Deford-Meehan complex, 0 to 3 percent slopes, drained	4,625	0.6
517B	Mancelona sand, 0 to 6 percent slopes	153	*
517D	Mancelona sand, 6 to 15 percent slopes	274	*
518A	Deford-Seney complex, frequently flooded, 0 to 3 percent slopes	1,306	0.2
519B	Trenary silt loam, 2 to 6 percent slopes	2,710	0.3
520B	Rubicon-Sultz complex, 0 to 6 percent slopes	1,065	0.1
520D	Rubicon-Sultz complex, 6 to 15 percent slopes	474	*
525B	Neconish-Kinross-Wainola complex, 0 to 6 percent slopes	8,560	1.1
526B	Graveraet-Angelica complex, 0 to 4 percent slopes	2,087	0.3
527B	Islandlake-McMillan complex, 0 to 6 percent slopes	415	*
527D	Islandlake-McMillan complex, 6 to 15 percent slopes	384	*
527E	Islandlake-McMillan complex, 15 to 35 percent slopes	404	*
531B	Greylock fine sandy loam, 1 to 6 percent slopes	220	*
531D	Greylock fine sandy loam, 6 to 15 percent slopes	279	*
532	Angelica muck	2,155	0.3
534	Pickford silty clay loam	20	*
535B	Trenary fine sandy loam, 2 to 6 percent slopes	72	*
535D	Trenary fine sandy loam, 6 to 15 percent slopes	305	*
536B	Menominee sand, sandy substratum, 2 to 6 percent slopes	176	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
537B	McMillan fine sandy loam, 0 to 6 percent slopes	1,717	0.2
537D	McMillan fine sandy loam, 6 to 15 percent slopes	59	*
538B	Menominee, sandy substratum-McMillan complex, 0 to 6 percent slopes	2,715	0.3
540D	Deford-Rubicon-Au Gres complex, 0 to 15 percent slopes	14,779	1.9
541D	Kinross-Au Gres-Rubicon complex, 0 to 15 percent slopes	11,167	1.4
543B	Auger very fine sandy loam, sandy substratum, 0 to 6 percent slopes	191	*
546B	Kalkaska sand, 0 to 6 percent slopes, deep water table	2,721	0.3
546D	Kalkaska sand, 6 to 15 percent slopes, deep water table	78	*
547B	Rubicon sand, 0 to 6 percent slopes, very deep water table	6,510	0.8
547D	Rubicon sand, 6 to 15 percent slopes, very deep water table	721	*
548B	McMillan-Trenary fine sandy loams, 1 to 6 percent slopes	18	*
549B	Islandlake sand, 0 to 6 percent slopes	750	*
549D	Islandlake sand, 6 to 15 percent slopes	1,479	0.2
549E	Islandlake sand, 15 to 35 percent slopes	153	*
551B	Kalkaska sand, 0 to 6 percent slopes, very deep water table	2,319	0.3
551D	Kalkaska sand, 6 to 15 percent slopes, very deep water table	336	*
553	Carbondale-Loxley complex	8,598	1.1
554B	Duck-Halfaday complex, 0 to 6 percent slopes	602	*
555D	Hiawatha-Deer Park-Rubicon complex, 0 to 15 percent slopes	1,624	0.2
557B	Kalkaska sand, 0 to 6 percent slopes, very deep water table, burned	2,010	0.3
557D	Kalkaska sand, 6 to 15 percent slopes, very deep water table, burned	207	*
558B	Islandlake sand, 0 to 6 percent slopes, burned	386	*
558D	Islandlake sand, 6 to 15 percent slopes, burned	423	*
559B	Kalkaska sand, 0 to 6 percent slopes, deep water table, burned	1,638	0.2
560B	Islandlake sand, 0 to 6 percent slopes, very deep water table	141	*
561A	Croswell sand, 0 to 3 percent slopes	461	*
562B	Croswell-Kinross complex, 0 to 6 percent slopes	881	0.1
563B	Halfaday-Kinross complex, 0 to 4 percent slopes	1,392	0.2
564A	Ingalls loamy sand, 0 to 3 percent slopes	93	*
565B	Rubicon sand, 0 to 6 percent slopes, deep water table	4,559	0.6
565D	Rubicon sand, 6 to 15 percent slopes, deep water table	453	*
W	Water	30,089	3.9
	Total	781,497	100.0

* Less than 0.1 percent.

Table 5.--Land Capability and Yields Per Acre of Crops

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Grass-legume hay	Oats	Irish potatoes
		Tons	Bu	Cwt
10B		---	---	---
Amadon	3s			
Rock outcrop.				
11B	3s	4.0	---	250
Kalkaska				
12B	6s	---	---	---
Rubicon				
12D, 12E, 12F	7s	---	---	---
Rubicon				
13B	4s	---	---	---
Kalkaska				
13D	6s	---	---	---
Kalkaska				
13E, 13F	7s	---	---	---
Kalkaska				
16A	6s	---	---	---
Paquin				
17A	4s	---	---	---
Au Gres				
18	6w	---	---	---
Kinross				
19A		---	---	---
Au Gres	4w			
Deford	5w			
20E		---	---	---
Rousseau	6e			
Neconish	4s			
Finch	4w			
21B	4s	---	---	---
Garlic				
21D	6s	---	---	---
Garlic				
21E	7s	---	---	---
Garlic				
22E		---	---	---
Rousseau	6e			
Neconish	4s			
Deford	5w			

Table 5.--Land Capability and Yields Per Acre of Crops--Continued

Map symbol and soil name	Land capability	Grass-legume hay	Oats	Irish potatoes
		Tons	Bu	Cwt
24B---------- Rousseau	3s	---	---	---
24D---------- Rousseau	4e	---	---	---
24E---------- Rousseau	6e	---	---	---
25B---------- Proper	6s	---	---	---
26A----------		---	---	---
Spot----------	5w			
Finch----------	4w			
27A----------		---	---	---
Hendrie----------	5w			
Annanias----------	3w			
30---------- Hendrie	5w	---	---	---
33. Pits, sand and gravel				
34B---------- Liminga	3s	---	---	---
34E---------- Liminga	6e	---	---	---
36----------		---	---	---
Carbondale----------	6w			
Lupton----------	6w			
Tawas----------	6w			
37----------		---	---	---
Dawson----------	7w			
Greenwood----------	7w			
Loxley----------	7w			
43---------- Ensley	5w	---	---	---
56B----------		---	---	---
Shuberts----------	5w			
Wurtsmith----------	4s			
Meehan----------	5s			
61A----------		---	---	---
Ingalls----------	3w			
Caffey----------	5w			
62B----------		3.5	65	---
McMillan----------	3s			
Greylock----------	2e			
62D----------		---	---	---
McMillan----------	4e			
Greylock----------	4e			

Table 5.--Land Capability and Yields Per Acre of Crops--Continued

Map symbol and soil name	Land capability	Grass-legume hay	Oats	Irish potatoes
		Tons	Bu	Cwt
62E		---	---	---
Greylock	7e			
McMillan	6e			
63	5w	---	---	---
Deford				
65		---	---	---
Ausable, frequently flooded	7w			
Deford, frequently flooded	7w			
Tawas, frequently flooded	6w			
66	6w	---	---	---
Markey				
67B		---	---	---
Pelkie, occasionally flooded	4s			
Deford, frequently flooded	7w			
68F	7s	---	---	---
Deer Park				
69	7w	---	---	---
Ruse				
70F		---	---	---
Deer Park	7s			
Deford	5w			
Tawas	6w			
72	5w	---	---	---
Spot				
73B		3.2	65	---
Graveraet	2e			
Gulliver	3e			
76A		---	---	---
Shuberts	5w			
Manistique	3w			
78B	4s	---	---	---
Heinz				
80F		---	---	---
Deer Park	7s			
Dawson	7w			
Wainola	4w			
84		---	---	---
Dawson	7w			
Kinross	6w			
86B		---	---	---
Wurtsmith	4s			
Tawas	6w			
Deford	5w			

Table 5.--Land Capability and Yields Per Acre of Crops--Continued

Map symbol and soil name	Land capability	Grass-legume hay	Oats	Irish potatoes
		Tons	Bu	Cwt
87B		3.5	75	---
Longrie	2e			
Amadon	3s			
87D		---	---	---
Amadon	4e			
Longrie	4e			
87E		---	---	---
Amadon	7e			
Longrie	7e			
Rock outcrop.				
88B		3.5	75	---
Cookson	2e			
Amadon	3s			
89B		3.5	75	---
Cookson	2e			
Trenary	2e			
90	6w	---	---	---
Chippeny				
91		---	---	---
Cathro	6w			
Lupton	6w			
93A		---	---	---
Ruse	7w			
Ensign	3w			
98B	4s	---	---	---
Guardlake				
98D	6s	---	---	---
Guardlake				
98E	6s	---	---	---
Guardlake				
116F.				
Udipsamments and Udorthents				
119.				
Landfill				
120A		---	65	---
Charlevoix	3w			
Ensley	5w			
122A	3w	---	---	---
Wormet				
123	5w	---	---	---
Minocqua				
125B, 125D, 125E		---	---	---
Stutts	4e			
Kalkaska	3s			

Table 5.--Land Capability and Yields Per Acre of Crops--Continued

Map symbol and soil name	Land capability	Grass-legume hay	Oats	Irish potatoes
		Tons	Bu	Cwt
131B		---	---	---
Furlong	4s			
Shingleton	4s			
141A	4s	---	---	---
Halfaday				
145B	3e	---	---	---
Noseum				
155B	3s	---	---	---
Karlin				
160B		---	---	---
Paquin	6s			
Finch	4w			
218.				
Pits, quarry				
219B	4s	---	---	---
Cublake				
222.				
Histosols and Aquents				
225B	4s	---	---	---
Cusino				
248B		2.4	70	---
Escanaba	3s			
Greylock	2e			
249A	3w	---	---	---
Iosco				
267A	4w	---	---	---
Finch				
287B	3s	---	---	---
Hiawatha				
289B, 289D	6s	---	---	---
Wallace				
289E	7s	---	---	---
Wallace				
294B		2.6	70	350
Munising, calcareous substratum	2e			
Yalmer, calcareous substratum	4s			
Frohling, calcareous substratum	2e			
295E		---	---	---
Dillingham	7s			
Kalkaska	7s			
355B	4s	---	---	---
Springlake				
366B	4s	---	---	---
Gilchrist				

Table 5.--Land Capability and Yields Per Acre of Crops--Continued

Map symbol and soil name	Land capability	Grass-legume hay	Oats	Irish potatoes
		Tons	Bu	Cwt
367B	3s	---	---	---
Cozy				
400B		---	---	---
Amadon	3s			
Rock outcrop.				
401A	3w	---	---	---
Ingalls				
490B		---	---	---
Pelkie, occasionally flooded	4s			
Arnheim, frequently flooded	5w			
491B		---	---	---
Neconish	4s			
Deford, rarely flooded	7w			
Wainola	4w			
492D		---	---	---
Wurtsmith	4s			
Duck	4s			
Rubicon	7s			
493A		---	---	---
Deford	5w			
Meehan	5s			
Seney	5s			
498B		---	---	---
Bursaw	4s			
Beavertail	5w			
505B	3s	3.2	65	---
Graveraet				
505D	3e	3.5	75	---
Graveraet				
512A	2w	3.5	70	---
Growton				
514B	4s	---	---	---
Kalkaska, burned				
514D	6s	---	---	---
Kalkaska, burned				
514E	7e	---	---	---
Kalkaska, burned				
515B	4s	---	---	---
Vilas				
516A		---	---	---
Deford, drained	4s			
Meehan, drained	4s			
517B	3s	---	---	---
Mancelona				

Table 5.--Land Capability and Yields Per Acre of Crops--Continued

Map symbol and soil name	Land capability	Grass-legume hay	Oats	Irish potatoes
		Tons	Bu	Cwt
517D---------- Mancelona	3s	---	39	183
518A----------		---	---	---
Deford, frequently flooded----------	7w			
Seney, frequently flooded----------	5s			
519B---------- Trenary	2e	3.3	60	300
520B----------		---	---	---
Rubicon----------	6s			
Sultz----------	3s			
520D----------		---	---	---
Rubicon----------	6s			
Sultz----------	6s			
525B----------		---	---	---
Neconish----------	4s			
Kinross----------	6w			
Wainola----------	4w			
526B----------		---	---	---
Graveraet----------	3s			
Angelica----------	5w			
527B----------		---	---	---
Islandlake----------	4s			
McMillan----------	3s			
527D----------		---	---	---
Islandlake----------	6s			
McMillan----------	4e			
527E----------		---	---	---
Islandlake----------	6e			
McMillan----------	6e			
531B---------- Greylock	2e	2.8	60	---
531D---------- Greylock	3e	2.4	55	---
532---------- Angelica	5w	---	---	---
534---------- Pickford	5w	---	75	---
535B---------- Trenary	2e	3.3	60	300
535D---------- Trenary	4e	3.3	60	300
536B----------	3s	---	---	---
Menominee, sandy substratum				

Table 5.--Land Capability and Yields Per Acre of Crops--Continued

Map symbol and soil name	Land capability	Grass-legume hay	Oats	Irish potatoes
		Tons	Bu	Cwt
537B---------- McMillan	3s	2.5	50	250
537D---------- McMillan	4e	---	---	---
538B---------- Menominee, sandy substratum----------		3.2	65	---
McMillan----------	3s			
	3s			
540D---------- Deford----------		---	---	---
Rubicon----------	5w			
Au Gres----------	7s			
	4w			
541D---------- Kinross----------		---	---	---
Au Gres----------	6w			
Rubicon----------	4w			
	7s			
543B---------- Auger, sandy substratum	3e	---	---	---
546B, 546D---------- Kalkaska, deep water table	4s	---	---	---
547B---------- Rubicon, very deep water table	6s	---	---	---
547D---------- Rubicon, very deep water table	7s	---	---	---
548B---------- McMillan----------		2.5	50	250
Trenary----------	3s			
	2e			
549B---------- Islandlake	4s	---	---	---
549D---------- Islandlake	6s	---	---	---
549E---------- Islandlake	6e	---	---	---
551B---------- Kalkaska, very deep water table	4s	---	---	---
551D---------- Kalkaska, very deep water table	6s	---	---	---
553---------- Carbondale----------		---	---	---
Loxley----------	6w			
	7w			
554B---------- Duck----------		---	---	---
Halfaday----------	4s			
	4s			

Table 5.--Land Capability and Yields Per Acre of Crops--Continued

Map symbol and soil name	Land capability	Grass-legume hay	Oats	Irish potatoes
		Tons	Bu	Cwt
555D		---	---	---
Hiawatha	3s			
Deer Park	7s			
Rubicon	7s			
557B	4s	---	---	---
Kalkaska, very deep water table, burned				
557D	6s	---	---	---
Kalkaska, very deep water table, burned				
558B	4s	---	---	---
Islandlake, burned				
558D	6s	---	---	---
Islandlake, burned				
559B	4s	---	---	---
Kalkaska, deep water table, burned				
560B	4s	---	---	---
Islandlake, very deep water table				
561A	4s	---	---	---
Croswell				
562B		---	---	---
Croswell	4s			
Kinross	6w			
563B		---	---	---
Halfaday	4s			
Kinross	6w			
564A	3w	---	---	---
Ingalls				
565B	6s	---	---	---
Rubicon, deep water table				
565D	7s	---	---	---
Rubicon, deep water table				
W.				
Water				

Table 6.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
43	Ensley muck (where drained)
62B	McMillan-Greylock fine sandy loams, 1 to 6 percent slopes
89B	Cookson-Trenary silt loams, 1 to 6 percent slopes
120A	Charlevoix-Ensley complex, 0 to 3 percent slopes (where drained)
401A	Ingalls sand, 0 to 3 percent slopes (where drained)
512A	Growton fine sandy loam, 0 to 3 percent slopes (where drained)
519B	Trenary silt loam, 2 to 6 percent slopes
531B	Greylock fine sandy loam, 1 to 6 percent slopes
535B	Trenary fine sandy loam, 2 to 6 percent slopes
564A	Ingalls loamy sand, 0 to 3 percent slopes (where drained)

Table 7.--Forestland Management and Productivity

(Only the soils suitable for production of commercial trees are listed. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for further explanation of ratings in this table)

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
10B:								
Amadon	Slight	Well suited	Severe Rooting depth	Low	American beech	---	---	White spruce.
					Balsam fir	---	---	
					Eastern white pine	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	57	29	
Rock outcrop.								
11B:								
Kalkaska	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Eastern white pine	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	68	123	
					Sugar maple	62	39	
12B:								
Rubicon	Slight	Well suited	Slight	Moderate Droughty	Bigtooth aspen	66	75	Eastern white pine, jack pine, red pine.
					Eastern white pine	45	75	
					Jack pine	53	73	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	60	64	
					Red maple	57	36	
					Red pine	53	82	
12D:								
Rubicon	Slight	Well suited	Slight	Moderate Droughty	Bigtooth aspen	66	75	Eastern white pine, jack pine, red pine.
					Eastern white pine	45	75	
					Jack pine	53	73	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	60	64	
					Red maple	57	36	
					Red pine	53	82	
12E:								
Rubicon	Slight	Poorly suited Slope	Slight	Moderate Droughty	Bigtooth aspen	66	75	Eastern white pine, jack pine, red pine.
					Eastern white pine	45	75	
					Jack pine	53	73	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	60	64	
					Red maple	57	36	
					Red pine	53	82	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
12F:								
Rubicon	Slight	Unsuited Slope	Slight	Moderate Droughty	Bigtooth aspen	66	75	Eastern white pine, jack pine, red pine.
					Eastern white pine	45	75	
					Jack pine	53	73	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	60	64	
					Red maple	57	36	
					Red pine	53	82	
13B:								
Kalkaska	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	73	136	
					Sugar maple	60	38	
13D:								
Kalkaska	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	73	136	
					Sugar maple	60	38	
13E:								
Kalkaska	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	73	136	
					Sugar maple	60	38	
13F:								
Kalkaska	Slight	Unsuited Slope	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	73	136	
					Sugar maple	60	38	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
16A:								
Paquin	Slight	Well suited	Moderate Wetness	Moderate Droughty	American beech	---	---	Eastern white pine, red pine, white spruce.
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Quaking aspen	---	---	
					Red maple	64	40	
					Red pine	67	120	
					Sugar maple	58	37	
					Yellow birch	---	---	
17A:								
Au Gres	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir	---	72	Eastern white pine, red pine, tamarack, white spruce.
					Eastern hemlock	---	86	
					Eastern white pine	---	---	
					Jack pine	51	69	
					Quaking aspen	---	57	
					Red maple	---	29	
					Red pine	61	104	
18:								
Kinross	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	---	---	---
					Black spruce	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	45	32	
					Red maple	---	---	
					Tamarack	---	---	
19A:								
Au Gres	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir	---	72	Eastern white pine, red pine, white spruce.
					Eastern hemlock	---	86	
					Eastern white pine	---	---	
					Jack pine	51	---	
					Quaking aspen	---	57	
					Red maple	---	29	
					Red pine	61	---	
Deford	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	---	---	Tamarack.
					Black ash	---	---	
					Eastern hemlock	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	66	57	
					Red maple	---	---	
20E:								
Rousseau	Slight	Poorly suited Slope	Slight	Moderate Droughty	Balsam fir	---	---	Jack pine, red pine.
					Bigtooth aspen	53	49	
					Eastern white pine	---	---	
					Jack pine	47	60	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	49	73	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
20E:								
Neconish------	Slight	Well suited	Moderate Wetness	Moderate Droughty	Bigtooth aspen------	69	80	Eastern white pine, red pine, white spruce.
					Eastern white pine--	---	---	
					Jack pine----------	53	73	
					Northern red oak----	---	---	
					Paper birch---------	54	55	
					Quaking aspen-------	68	78	
					Red maple----------	---	---	
					Red pine----------	55	88	
Finch---------	Slight	Poorly suited Restrictive layer	Moderate Wetness	High Wetness	Eastern white pine--	53	100	Eastern white pine, red pine, tamarack, white spruce.
					Jack pine----------	52	72	
					Paper birch---------	54	55	
					Quaking aspen-------	56	57	
					Red maple----------	56	36	
					Red pine----------	56	88	
21B:								
Garlic--------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	74	139	
					Sugar maple---------	62	39	
					Yellow birch--------	---	---	
21D:								
Garlic--------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	74	139	
					Sugar maple---------	62	39	
					Yellow birch--------	---	---	
21E:								
Garlic--------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	74	139	
					Sugar maple---------	62	39	
					Yellow birch--------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
22E:								
Rousseau------	Slight	Poorly suited Slope	Slight	Moderate Droughty	Balsam fir----------	---	---	Jack pine, red pine.
					Bigtooth aspen------	53	49	
					Eastern white pine--	---	---	
					Jack pine----------	47	60	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	49	73	
Neconish------	Slight	Well suited	Moderate Wetness	Moderate Droughty	Bigtooth aspen------	69	80	Eastern white pine, red pine, white spruce.
					Eastern white pine--	---	---	
					Jack pine----------	53	73	
					Northern red oak----	---	---	
					Paper birch---------	54	55	
					Quaking aspen-------	68	78	
					Red maple----------	---	---	
					Red pine----------	55	88	
Deford--------	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir----------	---	---	Tamarack.
					Black ash----------	---	---	
					Eastern hemlock-----	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	66	57	
					Red maple----------	---	---	
24B:								
Rousseau------	Slight	Well suited	Slight	Moderate Droughty	Balsam fir----------	---	---	Jack pine, red pine.
					Eastern white pine--	---	---	
					Jack pine----------	47	60	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	49	73	
24D:								
Rousseau------	Slight	Well suited	Slight	Moderate Droughty	Balsam fir----------	---	---	Jack pine, red pine.
					Bigtooth aspen------	53	49	
					Eastern white pine--	---	---	
					Jack pine----------	47	60	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	49	73	
24E:								
Rousseau------	Slight	Poorly suited Slope	Slight	Moderate Droughty	Balsam fir----------	---	---	Jack pine, red pine.
					Bigtooth aspen------	53	49	
					Eastern white pine--	---	---	
					Jack pine----------	47	60	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	49	73	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
25B:								
Proper	Slight	Well suited	Moderate Wetness	Moderate Droughty	Bigtooth aspen	69	80	Eastern white pine, red pine, white spruce.
					Eastern white pine	---	---	
					Jack pine	53	73	
					Northern red oak	---	---	
					Paper birch	54	55	
					Quaking aspen	68	78	
					Red maple	---	---	
					Red pine	55	88	
26A:								
Spot	Slight	Poorly suited Restrictive layer	Severe Wetness	High Wetness	Black spruce	---	---	---
					Jack pine	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	40	22	
					Tamarack	---	---	
Finch	Slight	Poorly suited Restrictive layer	Moderate Wetness	High Wetness	Eastern white pine	53	100	Eastern white pine, red pine, tamarack, white spruce.
					Jack pine	52	72	
					Paper birch	54	55	
					Quaking aspen	56	57	
					Red maple	56	36	
					Red pine	56	88	
27A:								
Hendrie	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	---	---	Eastern white pine, white spruce.
					Eastern hemlock	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	55	53	
					Red maple	---	---	
					White spruce	---	---	
					Yellow birch	---	---	
Annanias	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir	---	---	Eastern white pine, white spruce.
					Eastern hemlock	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	60	38	
					White spruce	---	---	
					Yellow birch	---	---	
30:								
Hendrie	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	---	---	Eastern white pine, white spruce.
					Eastern hemlock	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	55	53	
					Red maple	---	---	
					White spruce	---	---	
					Yellow birch	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
34B:								
Liminga-------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	60	38	
34E:								
Liminga-------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	60	38	
36:								
Carbondale----	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Balsam fir----------	40	71	---
					Black spruce--------	15	23	
					Northern whitecedar	---	---	
Lupton--------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Balsam fir----------	---	---	---
					Black spruce--------	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Red maple----------	---	---	
					Tamarack----------	---	---	
Tawas---------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Balsam fir----------	---	---	---
					Black spruce--------	15	23	
					Northern whitecedar	40	59	
37:								
Dawson--------	Slight	Unsuited Wetness	Severe Wetness	High Wetness	Black spruce--------	15	23	---
					Tamarack----------	---	---	
Greenwood-----	Slight	Unsuited Wetness	Severe Wetness	High Wetness	Black spruce--------	15	23	---
					Tamarack----------	---	---	
Loxley--------	Slight	Unsuited Wetness	Severe Wetness	High Wetness	Black spruce--------	15	23	---
					Tamarack----------	---	---	
43:								
Ensley--------	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir----------	60	114	---
					Black ash----------	---	---	
					Eastern arborvitae--	---	---	
					Eastern hemlock-----	---	---	
					Red maple----------	62	43	
					White spruce--------	---	---	
					Yellow birch--------	---	---	
56B:								
Shuberts------	Slight	Well suited	Severe Wetness Rooting depth	High Wetness	Balsam fir----------	---	---	Tamarack.
					Northern whitecedar	57	29	
					Paper birch---------	53	57	
					Red maple----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
56B:								
Wurtsmith	Slight	Well suited	Moderate Wetness	Moderate Droughty	Jack pine	46	---	Eastern white pine, jack pine, red pine.
					Quaking aspen	---	---	
					Red pine	45	---	
Meehan	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir	---	---	Eastern white pine, red pine, white spruce.
					Eastern white pine	53	---	
					Jack pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	52	---	
					Red pine	---	---	
					White spruce	---	---	
61A:								
Ingalls	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir	---	---	Eastern white pine, tamarack, white spruce.
					Eastern hemlock	---	---	
					Eastern white pine	53	99	
					Paper birch	54	55	
					Quaking aspen	60	64	
					Red maple	56	36	
					Red pine	56	90	
					White spruce	---	---	
Caffey	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	---	---	---
					Bigtooth aspen	---	---	
					Black ash	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	40	22	
					Red maple	---	---	
62B:								
McMillan	Slight	Well suited	Slight	Low	Sugar maple	61	38	Eastern white pine, red pine, white spruce.
					American beech	---	---	
					Eastern hophornbeam	---	---	
					American basswood	---	---	
					White ash	---	---	
					Yellow birch	---	---	
					Quaking aspen	70	81	
Greylock	Slight	Well suited	Slight	Low	Sugar maple	66	41	Red pine, white spruce.
					Yellow birch	---	---	
					American beech	---	---	
					White ash	---	---	
					Quaking aspen	78	91	
62D:								
McMillan	Slight	Well suited	Slight	Low	Sugar maple	61	38	Eastern white pine, red pine, white spruce.
					American beech	---	---	
					Eastern hophornbeam	---	---	
					American basswood	---	---	
					White ash	---	---	
					Yellow birch	---	---	
					Quaking aspen	70	81	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
62D:								
Greylock------	Slight	Well suited	Slight	Low	Sugar maple---------	66	41	Red pine, white spruce.
					Yellow birch--------	---	---	
					American beech------	---	---	
					White ash----------	---	---	
					Quaking aspen-------	78	91	
62E:								
Greylock------	Slight	Poorly suited Slope	Slight	Low	Sugar maple---------	66	41	Red pine, white spruce.
					Yellow birch--------	---	---	
					American beech------	---	---	
					White ash----------	---	---	
					Quaking aspen-------	78	91	
McMillan------	Slight	Poorly suited Slope	Slight	Low	Sugar maple---------	61	38	Eastern white pine, red pine, white spruce.
					American beech------	---	---	
					Eastern hophornbeam	---	---	
					American basswood---	---	---	
					White ash----------	---	---	
					Yellow birch--------	---	---	
					Quaking aspen-------	70	81	
63:								
Deford--------	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir----------	---	---	Tamarack.
					Black ash----------	---	---	
					Eastern hemlock-----	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	66	57	
					Red maple----------	---	---	
65:								
Ausable, frequently flooded------	Slight	Poorly suited Wetness	Moderate Wetness	High Wetness	Balsam fir----------	---	---	---
					Bigtooth aspen------	---	---	
					Black ash----------	---	---	
					Paper birch---------	---	---	
					Tamarack----------	---	---	
Deford, frequently flooded------	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir----------	---	---	Tamarack.
					Northern whitecedar	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Speckled alder------	---	---	
					Tamarack----------	---	---	
Tawas, frequently flooded------	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir----------	---	---	---
					Black spruce--------	15	23	
					Northern whitecedar	40	59	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
66:								
Markey	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Black spruce	---	---	---
					Northern whitecedar	---	---	
					Tamarack	---	---	
67B:								
Pelkie, occasionally flooded	Slight	Well suited	Moderate Wetness	Moderate Droughty	Balsam fir	---	---	---
					Eastern hemlock	---	---	
					Ironwood	---	---	
					Paper birch	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
Deford, frequently flooded	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir	---	---	---
					Northern whitecedar	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Speckled alder	---	---	
					Tamarack	---	---	
68F:								
Deer Park	Slight	Unsuited Slope	Slight	Moderate Droughty	Black cherry	---	---	Jack pine, red pine.
					Eastern white pine	---	---	
					Jack pine	46	57	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red pine	45	64	
69:								
Ruse	Slight	Poorly suited Wetness	Severe Rooting depth Wetness	High Wetness	Balsam fir	40	71	---
					Balsam poplar	---	---	
					Black ash	---	---	
					Eastern hemlock	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Yellow birch	---	---	
70F:								
Deer Park	Slight	Unsuited Slope	Slight	Moderate Droughty	Black cherry	---	---	Jack pine, red pine.
					Eastern white pine	---	---	
					Jack pine	46	57	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red pine	45	64	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
70F:								
Deford	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	---	---	Tamarack.
					Black ash	---	---	
					Eastern hemlock	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	66	57	
					Red maple	---	---	
Tawas	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Balsam fir	---	---	---
					Black spruce	15	23	
					Northern whitecedar	40	59	
72:								
Spot	Slight	Poorly suited Restrictive layer	Severe Wetness	High Wetness	Black spruce	---	---	---
					Jack pine	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	40	22	
					Tamarack	---	---	
73B:								
Graveraet	Slight	Poorly suited Wetness	Severe Rooting depth Wetness	High Wetness	American beech	---	---	Eastern white pine, red pine, white spruce.
					Balsam fir	---	---	
					Eastern hemlock	---	---	
					Quaking aspen	---	---	
					Sugar maple	65	40	
					White ash	---	---	
					Yellow birch	---	---	
Gulliver	Slight	Poorly suited Wetness	Moderate Wetness	Low	American beech	---	---	Eastern white pine, red pine, white spruce.
					Quaking aspen	---	---	
					Sugar maple	60	---	
					White ash	---	---	
					Yellow birch	---	---	
76A:								
Shuberts	Slight	Well suited	Severe Wetness Rooting depth	High Wetness	Balsam fir	---	---	Tamarack.
					Northern whitecedar	57	29	
					Paper birch	53	57	
					Red maple	---	---	
Manistique	Slight	Well suited	Moderate Wetness Rooting depth	High Wetness	Balsam fir	---	---	Tamarack.
					Northern whitecedar	57	29	
					Paper birch	53	57	
					Red maple	---	---	
78B:								
Heinz	Slight	Well suited	Moderate Wetness	Moderate Droughty	American basswood	---	---	Eastern white pine, red pine.
					American beech	---	---	
					Balsam fir	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	62	43	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
80F:								
Deer Park	Slight	Unsuited Slope	Slight	Moderate Droughty	Black cherry	---	---	Jack pine, red pine.
					Eastern white pine	---	---	
					Jack pine	46	57	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red pine	45	64	
Dawson	Slight	Unsuited Wetness	Severe Wetness	High Wetness	Black spruce	15	23	---
					Tamarack	---	---	
Wainola	Slight	Poorly suited Wetness	Moderate Wetness	High Wetness	Balsam fir	---	---	Eastern white pine, red pine, white spruce.
					Jack pine	52	72	
					Quaking aspen	56	86	
					Red maple	---	---	
					Red pine	56	---	
84:								
Dawson	Slight	Unsuited Wetness	Severe Wetness	High Wetness	Black spruce	15	23	---
					Tamarack	---	---	
Kinross	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	---	---	---
					Black spruce	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	45	32	
					Red maple	---	---	
					Tamarack	---	---	
86B:								
Wurtsmith	Slight	Well suited	Moderate Wetness	Moderate Droughty	Jack pine	46	---	Eastern white pine, jack pine, red pine.
					Quaking aspen	---	---	
					Red pine	45	---	
Tawas	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Balsam fir	---	---	---
					Black spruce	15	23	
					Northern whitecedar	40	59	
Deford	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	---	---	Tamarack.
					Black ash	---	---	
					Eastern hemlock	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	66	57	
					Red maple	---	---	
87B:								
Longrie	Slight	Well suited	Slight	Low	American basswood	64	---	Eastern white pine, red pine, white spruce.
					American beech	---	---	
					Balsam fir	---	---	
					Black cherry	---	---	
					Quaking aspen	---	---	
					Sugar maple	61	43	
					White ash	---	---	
					Yellow birch	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
87B:								
Amadon	Slight	Well suited	Severe Rooting depth	Low	American beech	---	---	Northern whitecedar, white spruce.
					Balsam fir	---	---	
					Eastern white pine	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	57	29	
87D:								
Amadon	Moderate	Well suited	Severe Rooting depth	Low	American beech	---	---	Eastern white pine, red pine.
					Balsam fir	---	---	
					Eastern white pine	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	57	36	
Longrie	Slight	Well suited	Slight	Low	American basswood	64	57	Eastern white pine, red pine, white spruce.
					American beech	---	---	
					Balsam fir	---	---	
					Black cherry	---	---	
					Quaking aspen	---	---	
					Sugar maple	61	38	
					White ash	---	---	
					Yellow birch	---	---	
87E:								
Amadon	Moderate Slope	Poorly suited Slope	Severe Rooting depth	Low	American beech	---	---	Eastern white pine, red pine.
					Balsam fir	---	---	
					Eastern white pine	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	57	36	
Longrie	Slight	Poorly suited Slope	Slight	Low	American basswood	64	57	Eastern white pine, red pine, white spruce.
					American beech	---	---	
					Balsam fir	---	---	
					Black cherry	---	---	
					Quaking aspen	---	---	
					Sugar maple	61	38	
					White ash	---	---	
					Yellow birch	---	---	
Rock outcrop.								

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
88B:								
Cookson-------	Slight	Well suited	Slight	Low	American basswood---	64	---	Eastern white pine, red pine, white spruce.
					American beech------	---	---	
					Black cherry--------	---	---	
					Quaking aspen-------	---	---	
					Sugar maple---------	61	38	
					White ash----------	---	---	
					Yellow birch--------	---	---	
Amadon--------	Slight	Well suited	Severe Rooting depth	Low	American beech------	---	---	White spruce.
					Balsam fir----------	---	---	
					Eastern white pine--	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	57	29	
89B:								
Cookson-------	Slight	Well suited	Slight	Low	American basswood---	64	---	Eastern white pine, red pine, white spruce.
					American beech------	---	---	
					Black cherry--------	---	---	
					Quaking aspen-------	---	---	
					Sugar maple---------	61	38	
					White ash----------	---	---	
					Yellow birch--------	---	---	
Trenary-------	Slight	Well suited	Slight	Low	Sugar maple---------	61	38	Eastern white pine, red pine, white spruce.
					Eastern hemlock-----	---	---	
					Yellow birch--------	61	38	
					Red maple----------	---	---	
					White spruce--------	---	---	
					Balsam fir----------	---	---	
					American basswood---	65	59	
					White ash----------	---	---	
					Quaking aspen-------	---	---	
90:								
Chippeny------	Slight	Well suited	Severe Wetness Rooting depth	High Wetness	Balsam fir----------	35	60	---
					Balsam poplar-------	---	---	
					Black ash----------	---	---	
					Eastern white pine--	---	---	
					Northern whitecedar	35	51	
					Paper birch---------	---	---	
					Red maple----------	---	---	
					White spruce--------	---	---	
					Yellow birch--------	---	---	
91:								
Cathro--------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Balsam fir----------	---	---	---
					Black spruce--------	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Red maple----------	---	---	
					Tamarack----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
91:								
Lupton	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Balsam fir	---	---	---
					Black spruce	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Red maple	---	---	
					Tamarack	---	---	
93A:								
Ruse	Slight	Poorly suited Wetness	Severe Rooting depth Wetness	High Wetness	Balsam fir	40	71	---
					Balsam poplar	---	---	
					Black ash	---	---	
					Eastern hemlock	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Yellow birch	---	---	
Ensign	Slight	Well suited	Severe Rooting depth Wetness	High Wetness	American basswood	65	57	Eastern white pine, tamarack, white spruce.
					American beech	---	---	
					Balsam fir	---	---	
					Bigtooth aspen	---	---	
					Northern whitecedar	36	57	
					Paper birch	56	57	
					Quaking aspen	---	---	
					Red pine	---	---	
					Sugar maple	53	29	
98B:								
Guardlake	Slight	Well suited	Slight	Low	American basswood	---	---	Eastern white pine, red pine, white spruce.
					American beech	---	---	
					Sugar maple	65	43	
					White ash	---	---	
					Yellow birch	---	---	
98D:								
Guardlake	Slight	Well suited	Slight	Low	American basswood	---	---	Eastern white pine, red pine, white spruce.
					American beech	---	---	
					Sugar maple	65	43	
					White ash	---	---	
					Yellow birch	---	---	
98E:								
Guardlake	Slight	Poorly suited Slope	Slight	Low	American basswood	---	---	Eastern white pine, red pine, white spruce.
					American beech	---	---	
					Sugar maple	65	43	
					White ash	---	---	
					Yellow birch	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
120A:								
Charlevoix----	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir----------	---	---	Norway spruce, eastern white pine, tamarack, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	65	43	
					Sugar maple---------	62	39	
					White spruce--------	---	---	
					Yellow birch--------	---	---	
Ensley--------	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir----------	60	114	---
					Black ash----------	---	---	
					Eastern arborvitae--	---	---	
					Eastern hemlock-----	---	---	
					Red maple----------	62	43	
					White spruce--------	---	---	
					Yellow birch--------	---	---	
122A:								
Wormet--------	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir----------	---	---	Eastern white pine, red pine, white spruce.
					Eastern hemlock-----	---	---	
					Northern whitecedar	---	---	
					Quaking aspen-------	---	81	
					Red maple----------	60	---	
					Yellow birch--------	---	---	
123:								
Minocqua------	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir----------	---	---	Tamarack.
					Black spruce--------	---	---	
					Northern whitecedar	---	---	
					Quaking aspen-------	66	57	
					Red maple----------	---	---	
125B:								
Stutts--------	Slight	Well suited	Slight	Low	American beech------	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	74	139	
					Sugar maple---------	62	39	
					Yellow birch--------	---	---	
Kalkaska------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	68	123	
					Sugar maple---------	62	39	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
125D:								
Stutts--------	Slight	Well suited	Slight	Low	American beech------	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	74	139	
					Sugar maple---------	62	39	
					Yellow birch--------	---	---	
Kalkaska------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	68	123	
					Sugar maple---------	62	39	
125E:								
Stutts--------	Slight	Poorly suited Slope	Slight	Low	American beech------	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	74	139	
					Sugar maple---------	62	39	
					Yellow birch--------	---	---	
Kalkaska------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	68	123	
					Sugar maple---------	62	39	
131B:								
Furlong-------	Slight	Well suited	Severe Rooting depth	Moderate Droughty	Balsam fir----------	---	---	Eastern white pine, tamarack, white spruce.
					Basswood----------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	74	86	
					Red maple----------	---	---	
					Sugar maple---------	62	39	
					Yellow birch--------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
131B:								
Shingleton----	Slight	Well suited	Severe Rooting depth	Moderate Droughty	Balsam fir----------	---	---	Eastern white pine, tamarack, white spruce.
					Basswood----------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	74	86	
					Red maple----------	---	---	
					Sugar maple---------	62	39	
					Yellow birch--------	---	---	
141A:								
Halfaday------	Slight	Well suited	Moderate Wetness	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	73	136	
					Sugar maple---------	60	38	
					Yellow birch--------	---	---	
145B:								
Noseum--------	Slight	Well suited	Moderate Wetness	Low	Balsam fir----------	---	---	Eastern white pine, red pine, white spruce.
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Quaking aspen-------	70	81	
					Red maple----------	---	---	
					Sugar maple---------	59	38	
					Yellow birch--------	---	---	
155B:								
Karlin--------	Slight	Well suited	Slight	Low	Bigtooth aspen------	---	---	Eastern white pine, red pine, white spruce.
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	67	---	
160B:								
Paquin--------	Slight	Well suited	Moderate Wetness	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine, white spruce.
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	64	40	
					Red pine----------	67	120	
					Sugar maple---------	58	37	
					Yellow birch--------	---	---	
Finch---------	Slight	Poorly suited Restrictive layer	Moderate Wetness	High Wetness	Eastern white pine--	53	100	Eastern white pine, red pine, tamarack, white spruce.
					Jack pine----------	52	72	
					Paper birch---------	54	55	
					Quaking aspen-------	56	57	
					Red maple----------	56	36	
					Red pine----------	56	88	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
219B:								
Cublake-------	Slight	Well suited	Moderate Wetness	Moderate Droughty	Bigtooth aspen------	69	80	Eastern white pine, red pine, white spruce.
					Eastern white pine--	---	---	
					Jack pine----------	53	73	
					Northern red oak----	---	---	
					Paper birch---------	54	55	
					Quaking aspen-------	68	78	
					Red maple----------	---	---	
					Red pine----------	55	88	
225B:								
Cusino--------	Slight	Well suited	Slight	Moderate Droughty	American beech------	66	41	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	53	34	
					Red pine----------	---	---	
					Sugar maple---------	59	39	
					Yellow birch--------	---	---	
248B:								
Escanaba------	Slight	Well suited	Slight	Moderate Droughty	Balsam fir----------	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Basswood----------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	78	91	
					Red maple----------	---	---	
					Sugar maple---------	66	41	
					Yellow birch--------	---	---	
Greylock------	Slight	Well suited	Slight	Low	Balsam fir----------	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Basswood----------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	78	91	
					Red maple----------	---	---	
					Sugar maple---------	66	41	
					Yellow birch--------	---	---	
249A:								
Iosco---------	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir----------	55	114	Eastern white pine, red pine, white spruce.
					Paper birch---------	58	57	
					Quaking aspen-------	65	72	
					Red maple----------	---	---	
					Red pine----------	---	---	
					Yellow birch--------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
267A:								
Finch---------	Slight	Poorly suited Restrictive layer	Moderate Wetness	High Wetness	Eastern white pine--	53	100	Eastern white pine, red pine, tamarack, white spruce.
					Jack pine----------	52	72	
					Paper birch---------	54	55	
					Quaking aspen-------	56	57	
					Red maple----------	56	36	
					Red pine----------	56	88	
287B:								
Hiawatha------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern white pine--	---	---	
					Red maple----------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	62	---	
289B:								
Wallace-------	Slight	Poorly suited Restrictive layer	Slight	Moderate Droughty	Balsam fir----------	---	---	Eastern white pine, red pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern white pine--	52	96	
					Paper birch---------	---	---	
					Quaking aspen-------	75	87	
					Red maple----------	---	---	
					Red pine----------	59	99	
					Sugar maple---------	---	---	
289D:								
Wallace-------	Slight	Poorly suited Restrictive layer	Slight	Moderate Droughty	Balsam fir----------	---	---	Eastern white pine, red pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern white pine--	52	96	
					Paper birch---------	---	---	
					Quaking aspen-------	75	87	
					Red maple----------	---	---	
					Red pine----------	59	99	
					Sugar maple---------	---	---	
289E:								
Wallace-------	Slight	Poorly suited Slope Restrictive layer	Slight	Moderate Droughty	Balsam fir----------	---	---	Eastern white pine, red pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern white pine--	52	96	
					Paper birch---------	---	---	
					Quaking aspen-------	75	87	
					Red maple----------	---	---	
					Red pine----------	59	99	
					Sugar maple---------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
294B:								
Munising, calcareous substratum---	Slight	Poorly suited Wetness	Moderate Wetness	High Wetness	Balsam fir----------	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Basswood----------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	78	91	
					Red maple----------	---	---	
					Sugar maple---------	66	41	
					Yellow birch--------	---	---	
Yalmer, calcareous substratum---	Slight	Poorly suited Wetness	Moderate Wetness	High Wetness Droughty	Balsam fir----------	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Basswood----------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	78	91	
					Red maple----------	---	---	
					Sugar maple---------	66	41	
					Yellow birch--------	---	---	
Frohling, calcareous substratum---	Slight	Well suited	Severe Rooting depth	Low	Balsam fir----------	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Basswood----------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	78	91	
					Red maple----------	---	---	
					Sugar maple---------	66	41	
					Yellow birch--------	---	---	
295E:								
Dillingham----	Slight	Poorly suited Slope	Severe Rooting depth	Low	American beech------	60	38	Eastern white pine, red pine.
					Balsam fir----------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	62	39	
Kalkaska------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	73	136	
					Sugar maple---------	60	38	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
355B:								
Springlake----	Slight	Well suited	Slight	Moderate	American beech------	---	---	Eastern white
				Droughty	Eastern hophornbeam	---	---	pine, red
					Quaking aspen-------	70	81	pine.
					Red pine----------	71	131	
					Sugar maple---------	60	38	
					White ash----------	---	---	
366B:								
Gilchrist-----	Slight	Well suited	Moderate	High	American beech------	---	---	Red pine,
			Wetness	Wetness	Balsam fir----------	---	---	tamarack,
			Rooting	Droughty	Eastern hemlock-----	---	---	white spruce.
			depth		Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	61	43	
367B:								
Cozy----------	Slight	Poorly	Severe	High	American beech------	---	---	Red pine,
		suited	Rooting	Wetness	Balsam fir----------	---	---	tamarack,
		Rock	depth	Droughty	Eastern hemlock-----	---	---	white spruce.
		fragments	Wetness		Eastern white pine--	---	---	
		Wetness			Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	64	41	
400B:								
Amadon--------	Slight	Well suited	Severe	Low	American beech------	---	---	White spruce.
			Rooting		Balsam fir----------	---	---	
			depth		Eastern white pine--	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	57	29	
Rock outcrop.								
401A:								
Ingalls-------	Slight	Well suited	Moderate	High	Balsam fir----------	---	---	Eastern white
			Wetness	Wetness	Eastern hemlock-----	---	---	pine,
					Eastern white pine--	53	99	tamarack,
					Paper birch---------	54	55	white spruce.
					Quaking aspen-------	60	64	
					Red maple----------	56	36	
					Red pine----------	56	90	
					White spruce--------	---	---	
490B:								
Pelkie,								
occasionally								
flooded------	Slight	Well suited	Moderate	Low	Balsam fir----------	---	---	---
			Wetness		Eastern hemlock-----	---	---	
					Ironwood----------	---	---	
					Paper birch---------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
490B:								
Arnheim, frequently flooded------	Slight	Well suited	Severe Wetness	High Wetness	Black ash----------	---	---	---
					Northern whitecedar	---	---	
					Yellow birch--------	---	---	
491B:								
Neconish------	Slight	Well suited	Moderate Wetness	Moderate Droughty	Bigtooth aspen------	69	80	Eastern white pine, red pine, white spruce.
					Eastern white pine--	---	---	
					Jack pine----------	53	73	
					Northern red oak----	---	---	
					Paper birch---------	54	55	
					Quaking aspen-------	68	78	
					Red maple----------	---	---	
					Red pine----------	55	88	
Deford, rarely flooded------	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir----------	---	---	Tamarack.
					Northern whitecedar	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Speckled alder------	---	---	
					Tamarack----------	---	---	
Wainola-------	Slight	Poorly suited Wetness	Moderate Wetness	High Wetness	Balsam fir----------	---	---	Eastern white pine, red pine, white spruce.
					Jack pine----------	52	72	
					Quaking aspen-------	56	86	
					Red maple----------	---	---	
					Red pine----------	56	---	
492D:								
Wurtsmith-----	Slight	Well suited	Moderate Wetness	Moderate Droughty	Jack pine----------	46	---	Eastern white pine, jack pine, red pine.
					Quaking aspen-------	---	---	
					Red pine----------	45	---	
Duck----------	Slight	Well suited	Moderate Wetness	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	73	136	
					Sugar maple---------	60	38	
					Yellow birch--------	---	---	
Rubicon-------	Slight	Well suited	Slight	Moderate Droughty	Bigtooth aspen------	66	75	Eastern white pine, jack pine, red pine.
					Eastern white pine--	45	75	
					Jack pine----------	53	73	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	60	64	
					Red maple----------	57	36	
					Red pine----------	53	82	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
493A:								
Deford	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	---	---	Tamarack.
					Black ash	---	---	
					Eastern hemlock	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	66	57	
					Red maple	---	---	
Meehan	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir	---	---	Eastern white pine, red pine, white spruce.
					Eastern white pine	53	---	
					Jack pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	52	---	
					Red pine	---	---	
					White spruce	---	---	
Seney	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir	---	---	Eastern white pine, red pine, white spruce.
					Black spruce	---	---	
					Eastern white pine	53	---	
					Jack pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	52	---	
					Red pine	---	---	
					White spruce	---	---	
498B:								
Bursaw	Slight	Poorly suited Rock fragments	Slight	Moderate Droughty	Balsam fir	---	---	Eastern white pine, tamarack, white spruce.
					Eastern white pine	---	---	
					Northern whitecedar	---	136	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					White spruce	---	---	
Beavertail	Slight	Poorly suited Rock fragments	Severe Wetness Rooting depth	High Wetness	Balsam fir	45	83	---
					Black ash	---	---	
					Northern whitecedar	26	37	
					Red maple	---	43	
					White spruce	---	---	
					Yellow birch	---	---	
505B:								
Graveraet	Slight	Poorly suited Wetness	Severe Rooting depth Wetness	High Wetness	American beech	---	---	Eastern white pine, red pine, white spruce.
					Balsam fir	---	---	
					Eastern hemlock	---	---	
					Quaking aspen	---	---	
					Sugar maple	65	40	
					White ash	---	---	
					Yellow birch	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
505D:								
Graveraet-----	Slight	Poorly suited Wetness	Severe Rooting depth Wetness	High Wetness	American beech------	---	---	Eastern white pine, red pine, white spruce.
					Balsam fir----------	---	---	
					Eastern hemlock-----	---	---	
					Quaking aspen-------	---	---	
					Sugar maple---------	65	40	
					White ash----------	---	---	
					Yellow birch--------	---	---	
512A:								
Growton-------	Slight	Well suited	Moderate Wetness	High Wetness	American basswood---	---	---	Eastern white pine, white spruce.
					Red maple----------	---	---	
					Sugar maple---------	64	40	
					White ash----------	---	---	
					White spruce--------	---	---	
514B:								
Kalkaska, burned-------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, jack pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern white pine--	---	---	
					Jack pine----------	59	84	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	56	90	
					Sugar maple---------	---	---	
514D:								
Kalkaska, burned-------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, jack pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern white pine--	---	---	
					Jack pine----------	59	84	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	56	90	
					Sugar maple---------	---	---	
514E:								
Kalkaska, burned-------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern white pine--	---	---	
					Jack pine----------	59	84	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	56	90	
					Sugar maple---------	---	---	
515B:								
Vilas---------	Slight	Well suited	Slight	Moderate Droughty	Bigtooth aspen------	---	---	Eastern white pine, jack pine, red pine.
					Eastern white pine--	---	---	
					Jack pine----------	58	82	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red pine----------	59	96	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
516A:								
Deford, drained------	Slight	Well suited	Moderate Wetness	Low	Balsam fir----------	---	---	Tamarack.
					Black ash----------	---	---	
					Eastern hemlock-----	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	66	57	
					Red maple----------	---	---	
Meehan, drained------	Slight	Well suited	Slight	Low	Balsam fir----------	---	---	Eastern white pine, red pine, white spruce.
					Eastern white pine--	53	---	
					Jack pine----------	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	52	---	
					Red pine----------	---	---	
					White spruce--------	---	---	
517B:								
Mancelona-----	Slight	Well suited	Slight	Moderate Droughty	Eastern white pine--	---	---	Eastern white pine, red pine.
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	56	43	
					Red pine----------	---	---	
					Sugar maple---------	---	---	
517D:								
Mancelona-----	Slight	Well suited	Slight	Moderate Droughty	Eastern white pine--	---	---	Eastern white pine, red pine.
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	56	43	
					Red pine----------	---	---	
					Sugar maple---------	---	---	
518A:								
Deford, frequently flooded------	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir----------	---	---	Tamarack.
					Northern whitecedar	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Speckled alder------	---	---	
					Tamarack----------	---	---	
Seney, frequently flooded------	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir----------	---	---	Eastern white pine, red pine, white spruce.
					Black spruce--------	---	---	
					Eastern white pine--	53	---	
					Jack pine----------	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	52	---	
					Red pine----------	---	---	
					White spruce--------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
519B:								
Trenary-------	Slight	Well suited	Slight	Low	Sugar maple---------	63	39	Eastern white pine, red pine, white spruce.
					Eastern hemlock-----	---	---	
					Yellow birch--------	61	38	
					Red maple----------	---	---	
					White spruce--------	---	---	
					Balsam fir----------	---	---	
					American basswood---	65	59	
					White ash----------	---	---	
					Quaking aspen-------	---	---	
520B:								
Rubicon-------	Slight	Well suited	Slight	Moderate Droughty	Bigtooth aspen------	66	75	Eastern white pine, jack pine, red pine.
					Eastern white pine--	45	75	
					Jack pine----------	53	73	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	60	64	
					Red maple----------	57	36	
					Red pine----------	53	82	
Sultz---------	Slight	Well suited	Slight	Moderate Droughty	Balsam fir----------	---	---	Eastern white pine, jack pine, red pine.
					Eastern white pine--	---	---	
					Jack pine----------	---	---	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	---	---	
520D:								
Rubicon-------	Slight	Well suited	Slight	Moderate Droughty	Bigtooth aspen------	66	75	Eastern white pine, jack pine, red pine.
					Eastern white pine--	45	75	
					Jack pine----------	53	73	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	60	64	
					Red maple----------	57	36	
					Red pine----------	53	82	
Sultz---------	Slight	Well suited	Slight	Moderate Droughty	Balsam fir----------	---	---	Eastern white pine, jack pine, red pine.
					Eastern white pine--	---	---	
					Jack pine----------	---	---	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	---	---	
525B:								
Neconish------	Slight	Well suited	Moderate Wetness	Moderate Droughty	Bigtooth aspen------	69	80	Eastern white pine, red pine, white spruce.
					Eastern white pine--	---	---	
					Jack pine----------	53	73	
					Northern red oak----	---	---	
					Paper birch---------	54	55	
					Quaking aspen-------	68	78	
					Red maple----------	---	---	
					Red pine----------	55	88	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
525B:								
Kinross	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	---	---	---
					Black spruce	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	45	32	
					Red maple	---	---	
					Tamarack	---	---	
Wainola	Slight	Poorly suited Wetness	Moderate Wetness	High Wetness	Balsam fir	---	---	Eastern white pine, red pine, white spruce.
					Jack pine	52	72	
					Quaking aspen	56	86	
					Red maple	---	---	
					Red pine	56	---	
526B:								
Graveraet	Slight	Poorly suited Wetness	Severe Rooting depth Wetness	High Wetness	American beech	---	---	Eastern white pine, red pine, white spruce.
					Balsam fir	---	---	
					Eastern hemlock	---	---	
					Quaking aspen	---	---	
					Sugar maple	65	40	
					White ash	---	---	
					Yellow birch	---	---	
Angelica	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	54	100	---
					Bigtooth aspen	---	---	
					Black ash	---	---	
					Red maple	---	---	
527B:								
Islandlake	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	73	136	
					Sugar maple	60	38	
					Yellow birch	---	---	
McMillan	Slight	Well suited	Slight	Low	Sugar maple	61	38	Eastern white pine, red pine, white spruce.
					American beech	---	---	
					Eastern hophornbeam	---	---	
					American basswood	---	---	
					White ash	---	---	
					Yellow birch	---	---	
					Quaking aspen	70	81	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
527D:								
Islandlake----	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	73	136	
					Sugar maple---------	60	38	
					Yellow birch--------	---	---	
McMillan------	Slight	Well suited	Slight	Low	Sugar maple---------	61	38	Eastern white pine, red pine, white spruce.
					American beech------	---	---	
					Eastern hophornbeam	---	---	
					American basswood---	---	---	
					White ash----------	---	---	
					Yellow birch--------	---	---	
					Quaking aspen-------	70	81	
527E:								
Islandlake----	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	73	136	
					Sugar maple---------	60	38	
					Yellow birch--------	---	---	
McMillan------	Slight	Poorly suited Slope	Slight	Low	Sugar maple---------	61	38	Eastern white pine, red pine, white spruce.
					American beech------	---	---	
					Eastern hophornbeam	---	---	
					American basswood---	---	---	
					White ash----------	---	---	
					Yellow birch--------	---	---	
					Quaking aspen-------	70	81	
531B:								
Greylock------	Slight	Well suited	Slight	Low	Balsam fir----------	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Basswood----------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	78	91	
					Red maple----------	---	---	
					Sugar maple---------	66	41	
					Yellow birch--------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
531D:								
Greylock------	Slight	Well suited	Slight	Low	Balsam fir----------	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Basswood----------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	78	91	
					Red maple----------	---	---	
					Sugar maple---------	66	41	
					Yellow birch--------	---	---	
532:								
Angelica------	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir----------	54	100	---
					Bigtooth aspen------	---	---	
					Black ash----------	---	---	
					Red maple----------	---	---	
534:								
Pickford------	Slight	Poorly suited Wetness Stickiness	Severe Wetness	High Wetness	Balsam fir----------	45	83	---
					Balsam poplar-------	---	---	
					Black ash----------	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					White spruce--------	45	84	
535B:								
Trenary-------	Slight	Well suited	Slight	Low	Sugar maple---------	61	38	Eastern white pine, red pine, white spruce.
					Eastern hemlock-----	---	---	
					Yellow birch--------	61	38	
					Red maple----------	---	---	
					White spruce--------	---	---	
					Balsam fir----------	---	---	
					American basswood---	65	59	
					White ash----------	---	---	
					Quaking aspen-------	---	---	
535D:								
Trenary-------	Slight	Well suited	Slight	Low	Sugar maple---------	61	38	Eastern white pine, red pine, white spruce.
					Eastern hemlock-----	---	---	
					Yellow birch--------	61	38	
					Red maple----------	---	---	
					White spruce--------	---	---	
					Balsam fir----------	---	---	
					American basswood---	65	59	
					White ash----------	---	---	
					Quaking aspen-------	---	---	
536B:								
Menominee, sandy substratum---	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, red pine, white spruce.
					Balsam fir----------	---	---	
					Eastern hemlock-----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	64	40	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
537B:								
McMillan------	Slight	Well suited	Slight	Low	Sugar maple---------	61	38	Eastern white
					American beech------	---	---	pine, red
					Eastern hophornbeam	---	---	pine, white
					American basswood---	---	---	spruce.
					White ash----------	---	---	
					Yellow birch--------	---	---	
					Quaking aspen-------	70	81	
537D:								
McMillan------	Slight	Well suited	Slight	Low	Sugar maple---------	61	38	Eastern white
					American beech------	---	---	pine, red
					Eastern hophornbeam	---	---	pine, white
					American basswood---	---	---	spruce.
					White ash----------	---	---	
					Yellow birch--------	---	---	
					Quaking aspen-------	70	81	
538B:								
Menominee, sandy substratum---	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Eastern white
					Balsam fir----------	---	---	pine, red
					Eastern hemlock-----	---	---	pine, white
					Quaking aspen-------	---	---	spruce.
					Red maple----------	---	---	
					Sugar maple---------	64	40	
McMillan------	Slight	Well suited	Slight	Low	Sugar maple---------	61	38	Eastern white
					American beech------	---	---	pine, red
					Eastern hophornbeam	---	---	pine, white
					American basswood---	---	---	spruce.
					White ash----------	---	---	
					Yellow birch--------	---	---	
					Quaking aspen-------	70	81	
540D:								
Deford--------	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir----------	---	---	Tamarack.
					Black ash----------	---	---	
					Eastern hemlock-----	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	66	57	
					Red maple----------	---	---	
Rubicon-------	Slight	Well suited	Slight	Moderate Droughty	Bigtooth aspen------	66	75	Eastern white
					Eastern white pine--	45	75	pine, jack
					Jack pine----------	53	73	pine, red
					Northern red oak----	---	---	pine.
					Paper birch---------	---	---	
					Quaking aspen-------	60	64	
					Red maple----------	57	36	
					Red pine----------	53	82	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
540D:								
Au Gres	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir	---	72	Eastern white pine, red pine, tamarack, white spruce.
					Eastern hemlock	---	86	
					Eastern white pine	---	---	
					Jack pine	51	69	
					Quaking aspen	---	57	
					Red maple	---	29	
					Red pine	61	104	
541D:								
Kinross	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	---	---	---
					Black spruce	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	45	32	
					Red maple	---	---	
					Tamarack	---	---	
Au Gres	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir	---	72	Eastern white pine, red pine, tamarack, white spruce.
					Eastern hemlock	---	86	
					Eastern white pine	---	---	
					Jack pine	51	69	
					Quaking aspen	---	57	
					Red maple	---	29	
					Red pine	61	104	
Rubicon	Slight	Well suited	Slight	Moderate Droughty	Bigtooth aspen	66	75	Eastern white pine, jack pine, red pine.
					Eastern white pine	45	75	
					Jack pine	53	73	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	60	64	
					Red maple	57	36	
					Red pine	53	82	
543B:								
Auger, sandy substratum	Slight	Well suited	Slight	Low	American beech	---	---	Eastern white pine, red pine, white spruce.
					Balsam fir	---	---	
					Bigtooth aspen	---	---	
					Hemlock	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	38	
					White spruce	---	---	
546B:								
Kalkaska, deep water table	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern white pine	---	---	
					Jack pine	59	84	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	56	90	
					Sugar maple	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
546D:								
Kalkaska, deep water table--	Slight	Well suited	Slight	Moderate	American beech------	---	---	Eastern white
				Droughty	Bigtooth aspen------	---	---	pine, red
					Eastern white pine--	---	---	pine.
					Jack pine----------	59	84	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	56	90	
					Sugar maple---------	---	---	
547B:								
Rubicon, very deep water table--------	Slight	Well suited	Slight	Moderate	Bigtooth aspen------	66	75	Eastern white
				Droughty	Eastern white pine--	45	75	pine, jack
					Jack pine----------	53	73	pine, red
					Northern red oak----	---	---	pine.
					Paper birch---------	---	---	
					Quaking aspen-------	60	64	
					Red maple----------	57	36	
					Red pine----------	53	82	
547D:								
Rubicon, very deep water table--------	Slight	Well suited	Slight	Moderate	Bigtooth aspen------	66	75	Eastern white
				Droughty	Eastern white pine--	45	75	pine, jack
					Jack pine----------	53	73	pine, red
					Northern red oak----	---	---	pine.
					Paper birch---------	---	---	
					Quaking aspen-------	60	64	
					Red maple----------	57	36	
					Red pine----------	53	82	
548B:								
McMillan------	Slight	Well suited	Slight	Low	Sugar maple---------	61	38	Eastern white
					American beech------	---	---	pine, red
					Eastern hophornbeam	---	---	pine, white
					American basswood---	---	---	spruce.
					White ash----------	---	---	
					Yellow birch--------	---	---	
					Quaking aspen-------	70	81	
Trenary-------	Slight	Well suited	Slight	Low	Sugar maple---------	61	38	Eastern white
					Eastern hemlock-----	---	---	pine, red
					Yellow birch--------	61	38	pine, white
					Red maple----------	---	---	spruce.
					White spruce--------	---	---	
					Balsam fir----------	---	---	
					American basswood---	65	46	
					White ash----------	---	---	
					Quaking aspen-------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
549B:								
Islandlake----	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	73	136	
					Sugar maple---------	60	38	
					Yellow birch--------	---	---	
549D:								
Islandlake----	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	73	136	
					Sugar maple---------	60	38	
					Yellow birch--------	---	---	
549E:								
Islandlake----	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	73	136	
					Sugar maple---------	60	38	
					Yellow birch--------	---	---	
551B:								
Kalkaska, very deep water table--------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern white pine--	---	---	
					Jack pine----------	59	84	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	56	90	
					Sugar maple---------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
551D:								
Kalkaska, very deep water table	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern white pine	---	---	
					Jack pine	59	84	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	56	90	
					Sugar maple	---	---	
553:								
Carbondale	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Black spruce	15	23	---
					Northern whitecedar	---	---	
Loxley	Slight	Unsuited Wetness	Severe Wetness	High Wetness	Black spruce	15	23	---
					Tamarack	---	---	
554B:								
Duck	Slight	Well suited	Moderate Wetness	Moderate Droughty	American beech	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	73	136	
					Sugar maple	60	38	
					Yellow birch	---	---	
Halfaday	Slight	Well suited	Moderate Wetness	Moderate Droughty	American beech	---	---	Eastern white pine, red pine, tamarack, white spruce.
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	73	136	
					Sugar maple	60	38	
					Yellow birch	---	---	
555D:								
Hiawatha	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern white pine	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	62	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
555D:								
Deer Park	Slight	Well suited	Slight	Moderate Droughty	Black cherry	---	---	Jack pine, red pine.
					Eastern white pine	---	---	
					Jack pine	46	57	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red pine	45	64	
Rubicon	Slight	Well suited	Slight	Moderate Droughty	Bigtooth aspen	66	75	Eastern white pine, jack pine, red pine.
					Eastern white pine	45	75	
					Jack pine	53	73	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	60	64	
					Red maple	57	36	
					Red pine	53	82	
557B:								
Kalkaska, very deep water table, burned	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern white pine	---	---	
					Jack pine	59	84	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	56	90	
					Sugar maple	---	---	
557D:								
Kalkaska, very deep water table, burned	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern white pine	---	---	
					Jack pine	59	84	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	56	90	
					Sugar maple	---	---	
558B:								
Islandlake, burned	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	56	90	
					Sugar maple	60	38	
					Yellow birch	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
558D:								
Islandlake, burned	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	56	90	
					Sugar maple	60	38	
					Yellow birch	---	---	
559B:								
Kalkaska, deep water table, burned	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern white pine	---	---	
					Jack pine	59	84	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	56	90	
					Sugar maple	---	---	
560B:								
Islandlake, very deep water table	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	73	136	
					Sugar maple	60	38	
					Yellow birch	---	---	
561A:								
Croswell	Slight	Well suited	Moderate Wetness	Moderate Droughty	Bigtooth aspen	69	86	Eastern white pine, red pine, white spruce.
					Eastern white pine	---	---	
					Jack pine	53	72	
					Northern red oak	---	---	
					Paper birch	54	57	
					Quaking aspen	68	72	
					Red maple	---	---	
					Red pine	55	86	
562B:								
Croswell	Slight	Well suited	Moderate Wetness	Moderate Droughty	Bigtooth aspen	69	86	Eastern white pine, red pine, white spruce.
					Eastern white pine	---	---	
					Jack pine	53	72	
					Northern red oak	---	---	
					Paper birch	54	57	
					Quaking aspen	68	72	
					Red maple	---	---	
					Red pine	55	86	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
562B:								
Kinross	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	---	---	---
					Black spruce	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	45	32	
					Red maple	---	---	
					Tamarack	---	---	
563B:								
Halfaday	Slight	Well suited	Moderate Wetness	Moderate Droughty	American beech	---	---	Eastern white pine, tamarack, white spruce.
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	73	136	
					Sugar maple	60	38	
					Yellow birch	---	---	
Kinross	Slight	Well suited	Severe Wetness	High Wetness	Balsam fir	---	---	---
					Black spruce	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	45	32	
					Red maple	---	---	
					Tamarack	---	---	
564A:								
Ingalls	Slight	Well suited	Moderate Wetness	High Wetness	Balsam fir	---	---	Eastern white pine, tamarack, white spruce.
					Eastern hemlock	---	---	
					Eastern white pine	53	99	
					Paper birch	54	55	
					Quaking aspen	60	64	
					Red maple	56	36	
					Red pine	56	90	
					White spruce	---	---	
565B:								
Rubicon, deep water table	Slight	Well suited	Slight	Moderate Droughty	Bigtooth aspen	66	75	Eastern white pine, jack pine, red pine.
					Eastern white pine	45	75	
					Jack pine	53	73	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	60	64	
					Red maple	57	36	
					Red pine	53	82	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
565D:								
Rubicon, deep water table--	Slight	Well suited	Slight	Moderate Droughty	Bigtooth aspen------	66	75	Eastern white pine, jack pine, red pine.
					Eastern white pine--	45	75	
					Jack pine----------	53	73	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	60	64	
					Red maple----------	57	36	
					Red pine----------	53	82	

* Volume is the yield in cubic feet per acre per year at the age of culmination of the mean annual increment for fully stocked stands.

Table 8.--Equipment Limitations on Forestland

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Absence of an entry indicates that information was not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
10B:							
Amadon	Poorly suited: Restrictive layer Low strength	Moderately suited: Low strength	Moderately suited: Low strength	Summer, fall, winter.	Poorly suited: Restrictive layer Low strength	Moderately suited: Low strength	Moderately suited Low strength
Rock outcrop.							
11B:							
Kalkaska	Moderately suited: Sandiness	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
12B:							
Rubicon	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
12D:							
Rubicon	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
12E:							
Rubicon	Moderately suited: Slope Sandiness	Poorly suited: Slope Too sandy	Moderately suited: Too sandy Slope	Spring, fall, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
12F:							
Rubicon	Poorly suited: Slope	Poorly suited: Slope Too sandy	Poorly suited: Slope Too sandy	Spring, fall, winter.	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
13B:							
Kalkaska	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
13D:							
Kalkaska	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
13E:							
Kalkaska	Moderately suited: Slope Sandiness	Poorly suited: Slope Too sandy	Moderately suited: Too sandy Slope	Spring, fall, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
13F:							
Kalkaska	Poorly suited: Slope	Poorly suited: Slope Too sandy	Poorly suited: Slope Too sandy	Spring, fall, winter.	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
16A:							
Paquin	Moderately suited: Wetness	Moderately suited: Wetness	Moderately suited: Wetness	Year round	Well suited	Well suited	Well suited
17A:							
Au Gres	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
18:							
Kinross	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
19A:							
Au Gres	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
Deford	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
20E:							
Rousseau	Moderately suited: Slope Sandiness	Moderately suited: Slope Too sandy	Moderately suited: Too sandy	Year round	Moderately suited: Slope	Moderately suited: Slope	Well suited
Neconish	Moderately suited: Wetness	Moderately suited: Wetness	Moderately suited: Wetness	Year round	Well suited	Well suited	Well suited
Finch	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Too sandy	Poorly suited: Wetness Too sandy	Summer, winter.	Well suited	Well suited	Well suited
21B:							
Garlic	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
21D:							
Garlic	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
21E:							
Garlic	Moderately suited: Slope Sandiness	Poorly suited: Slope Too sandy	Moderately suited: Too sandy Slope	Spring, fall, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
22E:							
Rousseau	Moderately suited: Slope Sandiness	Moderately suited: Slope Too sandy	Moderately suited: Too sandy	Year round	Moderately suited: Slope	Moderately suited: Slope	Well suited
Neconish	Moderately suited: Wetness	Moderately suited: Wetness	Moderately suited: Wetness	Year round	Well suited	Well suited	Well suited
Deford	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
24B:							
Rousseau	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Year round	Well suited	Well suited	Well suited
24D:							
Rousseau	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Year round	Well suited	Moderately suited: Slope	Well suited
24E:							
Rousseau	Moderately suited: Slope Sandiness	Poorly suited: Slope Too sandy	Moderately suited: Too sandy Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
25B:							
Proper	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Too sandy	Moderately suited: Wetness Too sandy	Year round	Well suited	Well suited	Well suited
26A:							
Spot	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness Too sandy	Poorly suited: Wetness Too sandy	Summer, winter.	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
26A:							
Finch	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Too sandy	Poorly suited: Wetness Too sandy	Summer, winter.	Well suited	Well suited	Well suited
27A:							
Hendrie	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Moderately suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
Annanias	Poorly suited: Wetness	Poorly suited: Wetness Low strength	Poorly suited: Wetness Low strength	Summer, winter.	Well suited	Moderately suited: Low strength	Moderately suited: Low strength
30:							
Hendrie	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Moderately suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
33. Pits, sand and gravel							
34B:							
Liminga	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
34E:							
Liminga	Moderately suited: Slope Sandiness	Poorly suited: Slope Too sandy	Moderately suited: Too sandy Slope	Spring, fall, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
36:							
Carbondale	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
Lupton	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
36:							
Tawas	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
37:							
Dawson	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
Greenwood	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
Loxley	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
43:							
Ensley	Poorly suited: Wetness	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Well suited	Poorly suited: Low strength	Poorly suited: Low strength
56B:							
Shuberts	Poorly suited: Wetness Restrictive layer	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Poorly suited: Restrictive layer	Poorly suited: Low strength	Poorly suited: Low strength
Wurtsmith	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Year round	Well suited	Well suited	Well suited
Meehan	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Too sandy	Poorly suited: Wetness Too sandy	Summer, winter.	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
61A:							
Ingalls----------	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Too sandy	Poorly suited: Wetness Too sandy	Summer, winter.	Well suited	Well suited	Well suited
Caffey----------	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
62B:							
McMillan---------	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
Greylock---------	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
62D:							
McMillan---------	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
Greylock---------	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
62E:							
Greylock---------	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
McMillan---------	Moderately suited: Slope Sandiness	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
63:							
Deford----------	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
65:							
Ausable, frequently flooded---------	Poorly suited: Wetness Flooding	Poorly suited: Flooding Wetness Too sandy	Poorly suited: Wetness Too sandy	Winter	Well suited	Well suited	Well suited
Deford, frequently flooded---------	Poorly suited: Wetness Flooding	Poorly suited: Flooding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
65:							
Tawas, frequently flooded	Poorly suited: Wetness Flooding Low strength	Poorly suited: Flooding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
66:							
Markey	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
67B:							
Pelkie, occasionally flooded	Moderately suited: Flooding	Moderately suited: Flooding	Well suited	---	Well suited	Well suited	Well suited
Deford, frequently flooded	Poorly suited: Wetness Flooding	Poorly suited: Flooding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
68F:							
Deer Park	Poorly suited: Slope	Poorly suited: Slope Too sandy	Poorly suited: Slope Too sandy	Spring, fall, winter.	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
69:							
Ruse	Poorly suited: Wetness Restrictive layer Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Wetness Low strength	Summer, winter.	Poorly suited: Restrictive layer Low strength	Moderately suited: Low strength	Moderately suited: Low strength
70F:							
Deer Park	Poorly suited: Slope	Poorly suited: Slope Too sandy	Poorly suited: Slope Too sandy	Spring, fall, winter.	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Deford	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
70F:							
Tawas	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
72:							
Spot	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness Too sandy	Poorly suited: Wetness Too sandy	Summer, winter.	Well suited	Well suited	Well suited
73B:							
Graveraet	Moderately suited: Wetness	Moderately suited: Wetness	Moderately suited: Wetness	Summer, fall, winter.	Well suited	Well suited	Well suited
Gulliver	Moderately suited: Wetness	Moderately suited: Wetness Low strength	Moderately suited: Low strength Wetness	Summer, fall, winter.	Well suited	Moderately suited: Low strength	Moderately suited: Low strength
76A:							
Shuberts	Poorly suited: Wetness Restrictive layer	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Poorly suited: Restrictive layer	Poorly suited: Low strength	Poorly suited: Low strength
Manistique	Poorly suited: Wetness Sandiness Restrictive layer	Poorly suited: Wetness Too sandy	Poorly suited: Wetness Too sandy	Summer, winter.	Moderately suited: Restrictive layer	Well suited	Well suited
78B:							
Heinz	Moderately suited: Wetness	Moderately suited: Wetness	Moderately suited: Wetness	Year round	Well suited	Well suited	Well suited
80F:							
Deer Park	Poorly suited: Slope	Poorly suited: Slope Too sandy	Poorly suited: Slope Too sandy	Spring, fall, winter.	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Dawson	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
80F:							
Wainola	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
84:							
Dawson	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
Kinross	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
86B:							
Wurtsmith	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Year round	Well suited	Well suited	Well suited
Tawas	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
Deford	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
87B:							
Longrie	Moderately suited: Restrictive layer Low strength	Moderately suited: Low strength	Moderately suited: Low strength	Summer, fall, winter.	Moderately suited: Restrictive layer Low strength	Moderately suited: Low strength	Moderately suited: Low strength
Amadon	Poorly suited: Restrictive layer Low strength	Moderately suited: Low strength	Moderately suited: Low strength	Summer, fall, winter.	Poorly suited: Restrictive layer Low strength	Moderately suited: Low strength	Moderately suited: Low strength
87D:							
Amadon	Poorly suited: Restrictive layer Low strength	Moderately suited: Low strength Slope	Moderately suited: Low strength	Summer, fall, winter.	Poorly suited: Restrictive layer Low strength	Moderately suited: Slope Low strength	Moderately suited: Low strength

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
87D:							
Longrie	Moderately suited: Restrictive layer Low strength	Moderately suited: Low strength Slope	Moderately suited: Low strength	Summer, fall, winter.	Moderately suited: Restrictive layer Low strength	Moderately suited: Slope Low strength	Moderately suited: Low strength
87E:							
Amadon	Poorly suited: Restrictive layer Slope	Poorly suited: Slope Low strength	Moderately suited: Low strength Slope	Summer, fall, winter.	Poorly suited: Restrictive layer Slope	Poorly suited: Slope Low strength	Moderately suited: Low strength Slope
Longrie	Moderately suited: Restrictive layer Slope	Poorly suited: Slope Low strength	Moderately suited: Low strength Slope	Summer, fall, winter.	Moderately suited: Restrictive layer Slope	Poorly suited: Slope Low strength	Moderately suited: Low strength Slope
Rock outcrop.							
88B:							
Cookson	Moderately suited: Restrictive layer	Moderately suited: Low strength	Moderately suited: Low strength	Summer, fall, winter.	Moderately suited: Restrictive layer	Moderately suited: Low strength	Moderately suited: Low strength
Amadon	Poorly suited: Restrictive layer Low strength	Moderately suited: Low strength	Moderately suited: Low strength	Summer, fall, winter.	Poorly suited: Restrictive layer Low strength	Moderately suited: Low strength	Moderately suited: Low strength
89B:							
Cookson	Moderately suited: Restrictive layer	Moderately suited: Low strength	Moderately suited: Low strength	Summer, fall, winter.	Moderately suited: Restrictive layer	Moderately suited: Low strength	Moderately suited: Low strength
Trenary	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
90:							
Chippeny	Poorly suited: Wetness Low strength Restrictive layer	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength Restrictive layer	Poorly suited: Low strength	Poorly suited: Low strength

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
91:							
Cathro	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
Lupton	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
93A:							
Ruse	Poorly suited: Wetness Restrictive layer Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Wetness Low strength	Summer, winter.	Poorly suited: Restrictive layer Low strength	Moderately suited: Low strength	Moderately suited: Low strength
Ensign	Poorly suited: Restrictive layer	Well suited	Well suited	Summer, winter.	Poorly suited: Restrictive layer	Well suited	Well suited
98B:							
Guardlake	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
98D:							
Guardlake	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
98E:							
Guardlake	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
116F:							
Udipsamments.							
Udorthents.							
119.							
Landfill							
120A:							
Charlevoix	Poorly suited: Wetness	Poorly suited: Wetness Low strength	Poorly suited: Wetness Low strength	Summer, winter.	Well suited	Moderately suited: Low strength	Moderately suited: Low strength

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
120A:							
Ensley	Poorly suited: Wetness	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Well suited	Poorly suited: Low strength	Poorly suited: Low strength
122A:							
Wormet	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
123:							
Minocqua	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Moderately suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
125B:							
Stutts	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
Kalkaska	Moderately suited: Sandiness	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
125D:							
Stutts	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
Kalkaska	Moderately suited: Sandiness	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
125E:							
Stutts	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Kalkaska	Moderately suited: Slope Sandiness	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
131B:							
Furlong	Moderately suited: Restrictive layer Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Moderately suited: Restrictive layer	Well suited	Well suited
Shingleton	Poorly suited: Restrictive layer	Well suited	Well suited	Year round	Poorly suited: Restrictive layer	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
141A:							
Halfaday	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Too sandy	Moderately suited: Wetness Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
145B:							
Noseum	Moderately suited: Wetness	Moderately suited: Wetness	Moderately suited: Wetness	Year round	Well suited	Well suited	Well suited
155B:							
Karlin	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
160B:							
Paquin	Moderately suited: Wetness	Moderately suited: Wetness	Moderately suited: Wetness	Year round	Well suited	Well suited	Well suited
Finch	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Too sandy	Poorly suited: Wetness Too sandy	Summer, winter.	Well suited	Well suited	Well suited
218. Pits, quarry							
219B:							
Cublake	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
222:							
Aquents.							
Histosols.							
225B:							
Cusino	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
248B:							
Escanaba	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
Greylock	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
249A:							
Iosco	Poorly suited: Wetness	Poorly suited: Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Well suited	Poorly suited: Low strength	Poorly suited: Low strength
267A:							
Finch	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Too sandy	Poorly suited: Wetness Too sandy	Summer, winter.	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
287B:							
Hiawatha---------	Well suited	Poorly suited: Low strength Too sandy	Poorly suited: Low strength Too sandy	Spring, fall, winter.	Well suited	Poorly suited: Low strength	Poorly suited: Low strength
289B:							
Wallace----------	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Year round	Well suited	Well suited	Well suited
289D:							
Wallace----------	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Year round	Well suited	Moderately suited: Slope	Well suited
289E:							
Wallace----------	Moderately suited: Slope Sandiness	Poorly suited: Slope Too sandy	Moderately suited: Too sandy Slope	Spring, fall, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
294B:							
Munising, calcareous substratum------	Moderately suited: Wetness	Moderately suited: Wetness	Moderately suited: Wetness	Summer, fall, winter.	Well suited	Well suited	Well suited
Yalmer, calcareous substratum------	Moderately suited: Wetness Sandiness	Moderately suited: Wetness	Moderately suited: Wetness	Summer, fall, winter.	Well suited	Well suited	Well suited
Frohling, calcareous substratum------	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
295E:							
Dillingham-------	Moderately suited: Slope Sandiness	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Kalkaska---------	Moderately suited: Slope Sandiness	Poorly suited: Slope Too sandy	Moderately suited: Too sandy Slope	Spring, fall, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
355B:							
Springlake-------	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
366B:							
Gilchrist	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
367B:							
Cozy	Well suited Wetness	Well suited Wetness	Well suited Wetness	Year round	Well suited	Well suited	Well suited
400B:							
Amadon	Poorly suited: Restrictive layer Low strength	Moderately suited: Low strength	Moderately suited: Low strength	Summer, fall, winter.	Poorly suited: Restrictive layer Low strength	Moderately suited: Low strength	Moderately suited: Low strength
Rock outcrop.							
401A:							
Ingalls	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Too sandy	Poorly suited: Wetness Too sandy	Summer, winter.	Well suited	Well suited	Well suited
490B:							
Pelkie, occasionally flooded	Moderately suited: Flooding	Moderately suited: Flooding	Well suited	---	Well suited	Well suited	Well suited
Arnheim, frequently flooded	Poorly suited: Wetness Flooding Low strength	Poorly suited: Ponding Flooding Wetness	Poorly suited: Wetness Low strength	Summer, winter.	Moderately suited: Low strength	Moderately suited: Low strength	Moderately suited: Low strength
491B:							
Neconish	Moderately suited: Wetness	Moderately suited: Wetness	Moderately suited: Wetness	Year round	Well suited	Well suited	Well suited
Deford, rarely flooded	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
Wainola	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
492D:							
Wurtsmith	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Year round	Well suited	Well suited	Well suited
Duck	Moderately suited: Wetness	Moderately suited: Wetness Too sandy Low strength	Moderately suited: Low strength Wetness Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Low strength	Moderately suited: Low strength
Rubicon	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
493A:							
Deford	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
Meehan	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Too sandy	Poorly suited: Wetness Too sandy	Summer, winter.	Well suited	Well suited	Well suited
Seney	Poorly suited: Wetness	Poorly suited: Wetness Too sandy Low strength	Poorly suited: Wetness Low strength Too sandy	Summer, winter.	Well suited	Moderately suited: Low strength	Moderately suited: Low strength
498B:							
Bursaw	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
Beavertail	Poorly suited: Wetness	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Well suited	Poorly suited: Low strength	Poorly suited: Low strength
505B:							
Graveraet	Moderately suited: Wetness	Moderately suited: Wetness	Moderately suited: Wetness	Summer, fall, winter.	Well suited	Well suited	Well suited
505D:							
Graveraet	Moderately suited: Wetness	Moderately suited: Wetness Slope	Moderately suited: Wetness	Summer, fall, winter.	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
512A:							
Growton	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
514B:							
Kalkaska, burned	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
514D:							
Kalkaska, burned	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
514E:							
Kalkaska, burned	Moderately suited: Slope Sandiness	Poorly suited: Slope Too sandy	Moderately suited: Slope Too sandy	Spring, fall, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
515B:							
Vilas	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
516A:							
Deford, drained	Moderately suited: Wetness	Moderately suited: Wetness	Moderately suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
Meehan, drained	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Summer, winter.	Well suited	Well suited	Well suited
517B:							
Mancelona	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
517D:							
Mancelona	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
518A:							
Deford, frequently flooded	Poorly suited: Wetness Flooding	Poorly suited: Flooding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
Seney, frequently flooded	Poorly suited: Wetness Flooding	Poorly suited: Wetness Flooding Too sandy	Poorly suited: Wetness Low strength Too sandy	Summer, winter.	Well suited	Moderately suited: Low strength	Moderately suited: Low strength

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
519B:							
Trenary----------	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
520B:							
Rubicon----------	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
Sultz----------	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
520D:							
Rubicon----------	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
Sultz----------	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
525B:							
Neconish---------	Moderately suited: Wetness	Moderately suited: Wetness	Moderately suited: Wetness	Year round	Well suited	Well suited	Well suited
Kinross----------	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
Wainola----------	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
526B:							
Graveraet--------	Moderately suited: Wetness	Moderately suited: Wetness	Moderately suited: Wetness	Summer, fall, winter.	Well suited	Well suited	Well suited
Angelica---------	Poorly suited: Wetness	Poorly suited: Ponding Wetness Low strength	Poorly suited: Wetness Low strength	Summer, winter.	Well suited	Moderately suited: Low strength	Moderately suited: Low strength
527B:							
Islandlake-------	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
McMillan---------	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
527D:							
Islandlake-------	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
527D:							
McMillan	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
527E:							
Islandlake	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
McMillan	Moderately suited: Slope Sandiness	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
531B:							
Greylock	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
531D:							
Greylock	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
532:							
Angelica	Poorly suited: Wetness	Poorly suited: Ponding Wetness Low strength	Poorly suited: Wetness Low strength	Summer, winter.	Well suited	Moderately suited: Low strength	Moderately suited: Low strength
534:							
Pickford	Poorly suited: Wetness Low strength Stickiness	Poorly suited: Wetness Ponding Low strength	Poorly suited: Wetness Low strength	Summer, winter.	Moderately suited: Low strength Stickiness	Moderately suited: Low strength	Moderately suited: Low strength
535B:							
Trenary	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
535D:							
Trenary	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
536B:							
Menominee, sandy substratum	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
537B:							
McMillan	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
537D:							
McMillan	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
538B:							
Menominee, sandy substratum	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
McMillan	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
540D:							
Deford	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
Rubicon	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
Au Gres	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
541D:							
Kinross	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
Au Gres	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
Rubicon	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
543B:							
Auger, sandy substratum	Moderately suited: Low strength	Moderately suited: Low strength	Moderately suited: Low strength	Summer, fall, winter.	Moderately suited: Low strength	Moderately suited: Low strength	Moderately suited: Low strength
546B:							
Kalkaska, deep water table	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
546D:							
Kalkaska, deep water table	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
547B:							
Rubicon, very deep water table	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
547D:							
Rubicon, very deep water table	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
548B:							
McMillan---------	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
Trenary----------	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
549B:							
Islandlake-------	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
549D:							
Islandlake-------	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
549E:							
Islandlake-------	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
551B:							
Kalkaska, very deep water table	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
551D:							
Kalkaska, very deep water table	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
553:							
Carbondale-------	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
Loxley----------	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
554B:							
Duck	Moderately suited: Wetness	Moderately suited: Wetness Too sandy Low strength	Moderately suited: Low strength Wetness Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Low strength	Moderately suited: Low strength
Halfaday	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Too sandy	Moderately suited: Wetness Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
555D:							
Hiawatha	Well suited	Poorly suited: Low strength Too sandy	Poorly suited: Low strength Too sandy	Spring, fall, winter.	Well suited	Poorly suited: Low strength	Poorly suited: Low strength
Deer Park	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
Rubicon	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
557B:							
Kalkaska, very deep water table, burned	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
557D:							
Kalkaska, very deep water table, burned	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
558B:							
Islandlake, burned	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
558D:							
Islandlake, burned	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
559B:							
Kalkaska, deep water table, burned	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
560B:							
Islandlake, very deep water table	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
561A:							
Croswell	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Too sandy	Moderately suited: Wetness Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
562B:							
Croswell	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Too sandy	Moderately suited: Wetness Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
Kinross	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
563B:							
Halfaday	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Too sandy	Moderately suited: Wetness Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited
Kinross	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
564A:							
Ingalls	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Too sandy	Poorly suited: Wetness Too sandy	Summer, winter.	Well suited	Well suited	Well suited
565B:							
Rubicon, deep water table	Moderately suited: Sandiness	Moderately suited: Too sandy	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
565D:							
Rubicon, deep water table	Moderately suited: Sandiness	Moderately suited: Too sandy Slope	Moderately suited: Too sandy	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
W. Water							

Table 9a.--Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10B:							
Amadon	75	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.50
Rock outcrop	25	Not rated		Not rated		Not rated	
11B:							
Kalkaska	90	Not limited		Not limited		Not limited	
12B:							
Rubicon	90	Not limited		Not limited		Somewhat limited	
						Slope	0.12
12D:							
Rubicon	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
12E:							
Rubicon	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
12F:							
Rubicon	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
13B:							
Kalkaska	94	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
						Slope	0.12
13D:							
Kalkaska	96	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Too sandy	1.00
13E:							
Kalkaska	100	Very limited		Very limited		Very limited	
		Slope	1.00	Too sandy	1.00	Slope	1.00
		Too sandy	1.00	Slope	1.00	Too sandy	1.00
13F:							
Kalkaska	100	Very limited		Very limited		Very limited	
		Slope	1.00	Too sandy	1.00	Slope	1.00
		Too sandy	1.00	Slope	1.00	Too sandy	1.00
16A:							
Paquin	90	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
17A:							
Au Gres	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
18:							
Kinross	92	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
19A:							
Au Gres	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Deford	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
20E:							
Rousseau	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Neconish	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Slope	0.12
Finch	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
21B:							
Garlic	90	Not limited		Not limited		Somewhat limited	
						Slope	0.12
21D:							
Garlic	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
21E:							
Garlic	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
22E:							
Rousseau	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Neconish	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Slope	0.12

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
22E:							
Deford	20	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
24B:							
Rousseau	100	Not limited		Not limited		Somewhat limited	
						Slope	0.12
24D:							
Rousseau	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
24E:							
Rousseau	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
25B:							
Proper	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
26A:							
Spot	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Finch	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
27A:							
Hendrie	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
Annanias	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
30:							
Hendrie	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
33:							
Pits, sand and gravel	100	Not rated		Not rated		Not rated	
34B:							
Liminga	90	Not limited		Not limited		Somewhat limited	
						Slope	0.12
34E:							
Liminga	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
36:							
Carbondale	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Lupton	30	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
Tawas	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
37:							
Dawson	30	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
Greenwood	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Loxley	30	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
43:							
Ensley	90	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

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
56B:							
Shuberts----------	30	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
Wurtsmith----------	25	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Slope	0.12
Meehan----------	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
61A:							
Ingalls----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Caffey----------	30	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
62B:							
McMillan----------	50	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Greylock----------	35	Not limited		Not limited		Somewhat limited	
						Slope	0.12
62D:							
McMillan----------	45	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
Greylock----------	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
62E:							
Greylock----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
McMillan----------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
63:							
Deford----------	92	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
65:							
Ausable, frequently flooded----------	30	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

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
65:							
Deford, frequently flooded	30	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
Tawas, frequently flooded	30	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	Organic matter content	1.00	Organic matter content	1.00
		Organic matter content	1.00	Flooding	0.40	Flooding	1.00
66:							
Markey	95	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
67B:							
Pelkie, occasionally flooded	50	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.19	Flooding	0.60
		Depth to saturated zone	0.39			Depth to saturated zone	0.39
Deford, frequently flooded	25	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
68F:							
Deer Park	98	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
69:							
Ruse	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
						Gravel content	0.06
70F:							
Deer Park	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Deford	20	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

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70F:							
Tawas	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
72:							
Spot	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
73B:							
Graveraet	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
						Slope	0.12
Gulliver	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
						Slope	0.12
76A:							
Shuberts	55	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
Manistique	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
78B:							
Heinz	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Slope	0.12
80F:							
Deer Park	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Dawson	20	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
Wainola	15	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 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
84:							
Dawson	65	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
Kinross	30	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
86B:							
Wurtsmith	50	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Slope	0.12
Tawas	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Deford	15	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
87B:							
Longrie	60	Not limited		Not limited		Somewhat limited	
						Slope	0.12
						Depth to bedrock	0.06
Amadon	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.50
87D:							
Amadon	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to bedrock	1.00
Longrie	45	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
						Depth to bedrock	0.06
87E:							
Amadon	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Longrie	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.06
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
88B:							
Cookson	55	Not limited		Not limited		Not limited	
Amadon	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.50
89B:							
Cookson	65	Not limited		Not limited		Not limited	
Trenary	30	Not limited		Not limited		Somewhat limited	
						Slope	0.12
90:							
Chippeny	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
91:							
Cathro	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
Lupton	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
93A:							
Ruse	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
						Gravel content	0.06
Ensign	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
98B:							
Guardlake	90	Not limited		Not limited		Somewhat limited	
						Slope	0.88
98D:							
Guardlake	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
98E:							
Guardlake	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
116F:							
Udipsamments	50	Not rated		Not rated		Not rated	
Udorthents	50	Not rated		Not rated		Not rated	
119:							
Landfill	100	Not rated		Not rated		Not rated	
120A:							
Charlevoix	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.15	Slow water movement	0.15	Slow water movement	0.15
Ensley	30	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
122A:							
Wormet	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
123:							
Minocqua	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
125B:							
Stutts	65	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Kalkaska	35	Not limited		Not limited		Not limited	
125D:							
Stutts	65	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Kalkaska	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
125E:							
Stutts	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Kalkaska	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
131B:							
Furlong	50	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.97
						Slope	0.50

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
131B:							
Shingleton----------	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
						Slope	0.12
141A:							
Halfaday----------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
145B:							
Noseum----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
155B:							
Karlin----------	100	Not limited		Not limited		Not limited	
160B:							
Paquin----------	55	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Slope	0.12
Finch----------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
218:							
Pits, quarry--------	100	Not rated		Not rated		Not rated	
219B:							
Cublake----------	100	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Slope	0.12
222:							
Histosols----------	50	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	Organic matter content	1.00
		Organic matter content	1.00	Organic matter content	1.00	Ponding	1.00
Aquents----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
225B:							
Cusino	95	Not limited		Not limited		Somewhat limited	
						Slope	0.12
248B:							
Escanaba	50	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Greylock	40	Not limited		Not limited		Somewhat limited	
						Slope	0.12
249A:							
Iosco	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
267A:							
Finch	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
287B:							
Hiawatha	85	Not limited		Not limited		Not limited	
289B:							
Wallace	85	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
						Slope	0.12
289D:							
Wallace	90	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to cemented pan	1.00
289E:							
Wallace	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
294B:							
Munising, calcareous substratum	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
						Slope	0.12

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
294B:							
Yalmer, calcareous substratum---------	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
						Slope	0.12
Frohling, calcareous substratum---------	20	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
						Slope	0.88
295E:							
Dillingham----------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to cemented pan	0.99	Depth to cemented pan	0.99	Depth to cemented pan	0.99
Kalkaska----------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Too sandy	1.00	Slope	1.00
		Too sandy	1.00	Slope	1.00	Too sandy	1.00
355B:							
Springlake----------	90	Not limited		Not limited		Somewhat limited	
						Slope	0.12
366B:							
Gilchrist----------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
		Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
						Slope	0.12
367B:							
Cozy----------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
						Slope	0.12
400B:							
Amadon----------	75	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.50
Rock outcrop--------	25	Not rated		Not rated		Not rated	
401A:							
Ingalls----------	90	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 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
490B:							
Pelkie, occasionally flooded----------	65	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.19	Flooding	0.60
		Depth to saturated zone	0.39			Depth to saturated zone	0.39
Arnheim, frequently flooded----------	25	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	Ponding	1.00	Flooding	1.00
		Ponding	1.00	Flooding	0.40	Ponding	1.00
491B:							
Neconish----------	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Slope	0.12
Deford, rarely flooded----------	25	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	Ponding	1.00	Ponding	1.00
		Ponding	1.00				
Wainola----------	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
492D:							
Wurtsmith----------	45	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Slope	0.12
Duck----------	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
Rubicon----------	15	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
493A:							
Deford----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Meehan----------	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Seney----------	20	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 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
498B:							
Bursaw----------	55	Not limited		Not limited		Somewhat limited	
						Slope	0.50
Beavertail----------	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
505B:							
Graveraet----------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
505D:							
Graveraet----------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Slope	1.00
		Slow water movement	1.00	Slow water movement	1.00	Depth to cemented pan	1.00
		Slope	0.04	Slope	0.04	Slow water movement	1.00
512A:							
Growton----------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
514B:							
Kalkaska, burned----	90	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
						Slope	0.12
514D:							
Kalkaska, burned----	95	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Too sandy	1.00
514E:							
Kalkaska, burned----	95	Very limited		Very limited		Very limited	
		Slope	1.00	Too sandy	1.00	Slope	1.00
		Too sandy	1.00	Slope	1.00	Too sandy	1.00
515B:							
Vilas----------	95	Not limited		Not limited		Somewhat limited	
						Slope	0.12
516A:							
Deford, drained-----	65	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
516A:							
Meehan, drained-----	25	Not limited		Not limited		Not limited	
517B:							
Mancelona----------	90	Not limited		Not limited		Somewhat limited	
						Slope	0.12
517D:							
Mancelona----------	100	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
518A:							
Deford, frequently flooded----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
Seney, frequently flooded----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
519B:							
Trenary----------	85	Not limited		Not limited		Somewhat limited	
						Slope	0.12
520B:							
Rubicon----------	55	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Sultz----------	40	Not limited		Not limited		Somewhat limited	
						Slope	0.12
520D:							
Rubicon----------	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Sultz----------	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
525B:							
Neconish----------	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Slope	0.12
Kinross----------	30	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
Wainola----------	25	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 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
526B:							
Graveraet----------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
Angelica----------	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Slow water movement	0.22	Slow water movement	0.22	Slow water movement	0.22
527B:							
Islandlake----------	55	Not limited		Not limited		Somewhat limited	
						Slope	0.12
McMillan----------	45	Not limited		Not limited		Somewhat limited	
						Slope	0.12
527D:							
Islandlake----------	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
McMillan----------	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
527E:							
Islandlake----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
McMillan----------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
531B:							
Greylock----------	90	Not limited		Not limited		Somewhat limited	
						Slope	0.12
531D:							
Greylock----------	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
532:							
Angelica----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Slow water movement	0.22	Slow water movement	0.22	Slow water movement	0.22

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
534:							
Pickford	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
535B:							
Trenary	90	Not limited		Not limited		Somewhat limited	
						Slope	0.50
535D:							
Trenary	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
536B:							
Menominee, sandy substratum	90	Not limited		Not limited		Somewhat limited	
						Slope	0.50
537B:							
McMillan	85	Not limited		Not limited		Somewhat limited	
						Slope	0.12
537D:							
McMillan	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
538B:							
Menominee, sandy substratum	50	Not limited		Not limited		Somewhat limited	
						Slope	0.50
McMillan	30	Not limited		Not limited		Somewhat limited	
						Slope	0.12
540D:							
Deford	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Rubicon	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Au Gres	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
541D:							
Kinross	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
541D:							
Au Gres----------	25	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Rubicon----------	15	Somewhat limited Slope	0.37	Somewhat limited Slope	0.37	Very limited Slope	1.00
543B:							
Auger, sandy substratum---------	85	Not limited		Not limited		Somewhat limited Slope	0.12
546B:							
Kalkaska, deep water table----------	95	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00
546D:							
Kalkaska, deep water table----------	90	Very limited Too sandy Slope	1.00 0.37	Very limited Too sandy Slope	1.00 0.37	Very limited Slope Too sandy	1.00 1.00
547B:							
Rubicon, very deep water table--------	95	Not limited		Not limited		Somewhat limited Slope	0.12
547D:							
Rubicon, very deep water table--------	95	Somewhat limited Slope	0.37	Somewhat limited Slope	0.37	Very limited Slope	1.00
548B:							
McMillan----------	55	Not limited		Not limited		Somewhat limited Slope	0.12
Trenary----------	35	Not limited		Not limited		Somewhat limited Slope	0.50
549B:							
Islandlake----------	95	Not limited		Not limited		Somewhat limited Slope	0.12
549D:							
Islandlake----------	95	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
549E:							
Islandlake----------	95	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
551B:							
Kalkaska, very deep water table--------	95	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
551D:							
Kalkaska, very deep water table	95	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Too sandy	1.00
553:							
Carbondale	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Loxley	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
554B:							
Duck	70	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
Halfaday	20	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
555D:							
Hiawatha	35	Not limited		Not limited		Not limited	
Deer Park	35	Not limited		Not limited		Somewhat limited	
						Slope	0.50
Rubicon	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
557B:							
Kalkaska, very deep water table, burned	95	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
						Slope	0.12
557D:							
Kalkaska, very deep water table, burned	95	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Too sandy	1.00
558B:							
Islandlake, burned	95	Not limited		Not limited		Somewhat limited	
						Slope	0.12
558D:							
Islandlake, burned	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
559B:							
Kalkaska, deep water table, burned-----	95	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
560B:							
Islandlake, very deep water table---	95	Not limited		Not limited		Somewhat limited	
						Slope	0.12
561A:							
Croswell----------	92	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
562B:							
Croswell----------	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Slope	0.12
Kinross----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
563B:							
Halfaday----------	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
Kinross----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
564A:							
Ingalls----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
565B:							
Rubicon, deep water table----------	95	Not limited		Not limited		Somewhat limited	
						Slope	0.12
565D:							
Rubicon, deep water table----------	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
W:							
Water----------	100	Not rated		Not rated		Not rated	

Table 9b.--Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
10B:					
Amadon	75	Not limited		Very limited	
				Depth to bedrock	1.00
				Droughty	1.00
Rock outcrop	25	Not rated		Not rated	
11B:					
Kalkaska	90	Not limited		Somewhat limited	
				Droughty	0.72
12B:					
Rubicon	90	Not limited		Somewhat limited	
				Droughty	0.93
12D:					
Rubicon	95	Not limited		Somewhat limited	
				Droughty	0.93
				Slope	0.37
12E:					
Rubicon	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.93
12F:					
Rubicon	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.93
13B:					
Kalkaska	94	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.87
				Too sandy	0.50
13D:					
Kalkaska	96	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.87
				Too sandy	0.50
				Slope	0.37
13E:					
Kalkaska	100	Very limited		Very limited	
		Too sandy	1.00	Slope	1.00
		Slope	1.00	Droughty	0.87
				Too sandy	0.50

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
13F:					
Kalkaska	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too sandy	1.00	Droughty	0.87
				Too sandy	0.50
16A:					
Paquin	90	Not limited		Very limited	
				Depth to cemented pan	1.00
				Droughty	1.00
				Depth to saturated zone	0.19
17A:					
Au Gres	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.80
18:					
Kinross	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
				Droughty	0.04
19A:					
Au Gres	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.80
Deford	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
20E:					
Rousseau	40	Not limited		Very limited	
				Slope	1.00
				Droughty	0.84
Neconish	25	Not limited		Somewhat limited	
				Droughty	0.74
				Depth to saturated zone	0.19
Finch	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00
				Depth to saturated zone	1.00
				Droughty	1.00
21B:					
Garlic	90	Not limited		Somewhat limited	
				Droughty	0.74

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
21D:					
Garlic	90	Not limited		Somewhat limited	
				Droughty	0.74
				Slope	0.37
21E:					
Garlic	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.74
22E:					
Rousseau	45	Not limited		Very limited	
				Slope	1.00
				Droughty	0.84
Neconish	25	Not limited		Somewhat limited	
				Droughty	0.74
				Depth to saturated zone	0.19
Deford	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
24B:					
Rousseau	100	Not limited		Somewhat limited	
				Droughty	0.84
24D:					
Rousseau	90	Not limited		Somewhat limited	
				Droughty	0.84
				Slope	0.37
24E:					
Rousseau	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.84
25B:					
Proper	85	Not limited		Somewhat limited	
				Droughty	0.89
				Depth to saturated zone	0.19
26A:					
Spot	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00
		Ponding	1.00	Depth to saturated zone	1.00
				Droughty	1.00
				Ponding	1.00
Finch	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00
				Depth to saturated zone	1.00
				Droughty	1.00

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
27A:					
Hendrie----------	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
Annanias----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
30:					
Hendrie----------	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
33:					
Pits, sand and gravel----------	100	Not rated		Not rated	
34B:					
Liminga----------	90	Not limited		Somewhat limited	
				Droughty	0.75
34E:					
Liminga----------	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.75
36:					
Carbondale----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Organic matter content	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
Lupton----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
Tawas----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Organic matter content	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
37:					
Dawson----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
37:					
Greenwood----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Organic matter content	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
Loxley----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
43:					
Ensley----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
56B:					
Shuberts----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
				Droughty	1.00
				Depth to bedrock	0.84
Wurtsmith----------	25	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.74
				Too sandy	0.50
				Depth to saturated zone	0.19
Meehan----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.96
61A:					
Ingalls----------	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
Caffey----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
62B:					
McMillan----------	50	Not limited		Somewhat limited	
				Droughty	0.20
Greylock----------	35	Not limited		Not limited	
62D:					
McMillan----------	45	Not limited		Somewhat limited	
				Droughty	0.20
				Slope	0.16

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
62D:					
Greylock----------	35	Not limited		Somewhat limited	
				Slope	0.16
62E:					
Greylock----------	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
McMillan----------	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.20
63:					
Deford----------	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
65:					
Ausable, frequently flooded----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Depth to saturated zone	1.00
Deford, frequently flooded----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Depth to saturated zone	1.00
Tawas, frequently flooded----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Organic matter content	1.00	Organic matter content	1.00
		Flooding	0.40	Depth to saturated zone	1.00
66:					
Markey----------	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
67B:					
Pelkie, occasionally flooded----------	50	Not limited		Somewhat limited	
				Flooding	0.60
				Depth to saturated zone	0.19
				Droughty	0.14
Deford, frequently flooded----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Depth to saturated zone	1.00

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
68F:					
Deer Park	98	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.85
69:					
Ruse	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to bedrock	1.00
		Ponding	1.00	Depth to saturated zone	1.00
				Ponding	1.00
				Droughty	0.93
70F:					
Deer Park	60	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.85
Deford	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
Tawas	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Organic matter content	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
72:					
Spot	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00
		Ponding	1.00	Depth to saturated zone	1.00
				Droughty	1.00
				Ponding	1.00
73B:					
Graveraet	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00
				Depth to saturated zone	1.00
				Droughty	0.80
Gulliver	35	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.75
76A:					
Shuberts	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
				Droughty	1.00
				Depth to bedrock	0.84

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
76A:					
Manistique----------	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	1.00
				Depth to bedrock	0.65
78B:					
Heinz----------	100	Not limited		Somewhat limited	
				Droughty	0.69
				Depth to saturated zone	0.19
80F:					
Deer Park----------	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.85
Dawson----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
Wainola----------	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.72
84:					
Dawson----------	65	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
Kinross----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
				Droughty	0.04
86B:					
Wurtsmith----------	50	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.74
				Too sandy	0.50
				Depth to saturated zone	0.19
Tawas----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Organic matter content	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
Deford----------	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
87B:					
Longrie----------	60	Not limited		Somewhat limited	
				Depth to bedrock	0.06
Amadon----------	30	Not limited		Very limited	
				Depth to bedrock	1.00
				Droughty	1.00
87D:					
Amadon----------	45	Not limited		Very limited	
				Depth to bedrock	1.00
				Droughty	1.00
				Slope	0.37
Longrie----------	45	Not limited		Somewhat limited	
				Slope	0.37
				Depth to bedrock	0.06
87E:					
Amadon----------	65	Very limited		Very limited	
		Slope	1.00	Depth to bedrock	1.00
				Slope	1.00
				Droughty	1.00
Longrie----------	20	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Depth to bedrock	0.06
Rock outcrop--------	15	Not rated		Not rated	
88B:					
Cookson----------	55	Not limited		Somewhat limited	
				Depth to bedrock	0.06
Amadon----------	45	Not limited		Very limited	
				Depth to bedrock	1.00
				Droughty	1.00
89B:					
Cookson----------	65	Not limited		Somewhat limited	
				Depth to bedrock	0.06
Trenary----------	30	Not limited		Not limited	
90:					
Chippeny----------	100	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Organic matter content	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
				Depth to bedrock	0.65

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
91:					
Cathro	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Organic matter content	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
Lupton	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
93A:					
Ruse	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to bedrock	1.00
		Ponding	1.00	Depth to saturated zone	1.00
				Ponding	1.00
				Droughty	0.93
Ensign	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to bedrock	1.00
				Depth to saturated zone	1.00
				Droughty	1.00
98B:					
Guardlake	90	Not limited		Somewhat limited	
				Droughty	0.46
98D:					
Guardlake	95	Not limited		Somewhat limited	
				Droughty	0.46
				Slope	0.16
98E:					
Guardlake	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.46
116F:					
Udipsamments	50	Not rated		Not rated	
Udorthents	50	Not rated		Not rated	
119:					
Landfill	100	Not rated		Not rated	
120A:					
Charlevoix	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
Ensley	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
122A:					
Wormet	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.16
123:					
Minocqua	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
125B:					
Stutts	65	Not limited		Somewhat limited	
				Droughty	0.01
Kalkaska	35	Not limited		Somewhat limited	
				Droughty	0.72
125D:					
Stutts	65	Not limited		Somewhat limited	
				Slope	0.37
				Droughty	0.01
Kalkaska	25	Not limited		Somewhat limited	
				Droughty	0.72
				Slope	0.37
125E:					
Stutts	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.01
Kalkaska	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.72
131B:					
Furlong	50	Not limited		Very limited	
				Droughty	1.00
				Depth to bedrock	0.97
Shingleton	40	Not limited		Very limited	
				Depth to bedrock	1.00
				Droughty	1.00
141A:					
Halfaday	90	Not limited		Somewhat limited	
				Droughty	0.79
				Depth to saturated zone	0.19
145B:					
Noseum	85	Not limited		Somewhat limited	
				Depth to saturated zone	0.19

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
155B:					
Karlin	100	Not limited		Somewhat limited	
				Droughty	0.29
160B:					
Paquin	55	Not limited		Very limited	
				Depth to cemented pan	1.00
				Droughty	1.00
				Depth to saturated zone	0.19
Finch	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00
				Depth to saturated zone	1.00
				Droughty	1.00
218:					
Pits, quarry	100	Not rated		Not rated	
219B:					
Cublake	100	Very limited		Somewhat limited	
		Too sandy	1.00	Too sandy	0.50
				Depth to saturated zone	0.19
				Droughty	0.04
222:					
Histosols	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00
		Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Depth to saturated zone	1.00
Aquents	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00		
225B:					
Cusino	95	Not limited		Somewhat limited	
				Droughty	0.92
248B:					
Escanaba	50	Not limited		Not limited	
Greylock	40	Not limited		Not limited	
249A:					
Iosco	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.01

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
267A:					
Finch	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00
				Depth to saturated zone	1.00
				Droughty	1.00
287B:					
Hiawatha	85	Not limited		Somewhat limited	
				Droughty	0.96
289B:					
Wallace	85	Not limited		Very limited	
				Depth to cemented pan	1.00
				Droughty	1.00
289D:					
Wallace	90	Not limited		Very limited	
				Depth to cemented pan	1.00
				Droughty	1.00
				Slope	0.37
289E:					
Wallace	95	Very limited		Very limited	
		Slope	1.00	Depth to cemented pan	1.00
				Slope	1.00
				Droughty	1.00
294B:					
Munising, calcareous substratum	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.01
Yalmer, calcareous substratum	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.84
Frohling, calcareous substratum	20	Not limited		Not limited	
295E:					
Dillingham	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Depth to cemented pan	0.99
				Droughty	0.98
Kalkaska	40	Very limited		Very limited	
		Too sandy	1.00	Slope	1.00
		Slope	1.00	Droughty	0.87
				Too sandy	0.50

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
355B:					
Springlake----------	90	Not limited		Somewhat limited	
				Droughty	0.94
366B:					
Gilchrist----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	1.00
367B:					
Cozy----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.01
400B:					
Amadon----------	75	Not limited		Very limited	
				Depth to bedrock	1.00
				Droughty	1.00
Rock outcrop--------	25	Not rated		Not rated	
401A:					
Ingalls----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Too acid	1.00
490B:					
Pelkie, occasionally flooded----------	65	Not limited		Somewhat limited	
				Flooding	0.60
				Depth to saturated zone	0.19
				Droughty	0.07
Arnheim, frequently flooded----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Ponding	1.00
491B:					
Neconish----------	45	Not limited		Somewhat limited	
				Droughty	0.74
				Depth to saturated zone	0.19
Deford, rarely flooded----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
491B:					
Wainola----------	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.72
492D:					
Wurtsmith----------	45	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.74
				Too sandy	0.50
				Depth to saturated zone	0.19
Duck----------	30	Not limited		Somewhat limited	
				Droughty	0.76
				Depth to saturated zone	0.19
Rubicon----------	15	Not limited		Somewhat limited	
				Droughty	0.93
				Slope	0.37
493A:					
Deford----------	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
Meehan----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.96
Seney----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.58
498B:					
Bursaw----------	55	Not limited		Very limited	
				Droughty	1.00
Beavertail----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
				Droughty	0.04
505B:					
Graveraet----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00
				Depth to saturated zone	1.00
				Droughty	0.80

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
505D:					
Graveraet	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00
				Depth to saturated zone	1.00
				Droughty	0.80
				Slope	0.04
512A:					
Growton	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
514B:					
Kalkaska, burned	90	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.87
				Too sandy	0.50
514D:					
Kalkaska, burned	95	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.87
				Too sandy	0.50
				Slope	0.37
514E:					
Kalkaska, burned	95	Very limited		Very limited	
		Too sandy	1.00	Slope	1.00
		Slope	1.00	Droughty	0.87
				Too sandy	0.50
515B:					
Vilas	95	Not limited		Somewhat limited	
				Droughty	0.86
516A:					
Deford, drained	65	Not limited		Somewhat limited	
				Depth to saturated zone	0.19
Meehan, drained	25	Not limited		Somewhat limited	
				Droughty	0.96
517B:					
Mancelona	90	Not limited		Somewhat limited	
				Droughty	0.69
517D:					
Mancelona	100	Not limited		Somewhat limited	
				Droughty	0.69
				Slope	0.37
518A:					
Deford, frequently flooded	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Depth to saturated zone	1.00

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
518A:					
Seney, frequently flooded	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Depth to saturated zone	1.00
				Droughty	0.58
519B:					
Trenary	85	Not limited		Not limited	
520B:					
Rubicon	55	Not limited		Somewhat limited	
				Droughty	0.93
Sultz	40	Not limited		Somewhat limited	
				Droughty	0.86
520D:					
Rubicon	55	Not limited		Somewhat limited	
				Droughty	0.93
				Slope	0.37
Sultz	40	Not limited		Somewhat limited	
				Droughty	0.86
				Slope	0.37
525B:					
Neconish	35	Not limited		Somewhat limited	
				Droughty	0.74
				Depth to saturated zone	0.19
Kinross	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
				Droughty	0.04
Wainola	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.72
526B:					
Graveraet	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00
				Depth to saturated zone	1.00
				Droughty	0.80
Angelica	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
527B:					
Islandlake----------	55	Not limited		Somewhat limited	
				Droughty	0.60
McMillan----------	45	Not limited		Somewhat limited	
				Droughty	0.20
527D:					
Islandlake----------	55	Not limited		Somewhat limited	
				Droughty	0.60
				Slope	0.16
McMillan----------	35	Not limited		Somewhat limited	
				Droughty	0.20
				Slope	0.16
527E:					
Islandlake----------	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.60
McMillan----------	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.20
531B:					
Greylock----------	90	Not limited		Not limited	
531D:					
Greylock----------	85	Not limited		Somewhat limited	
				Slope	0.37
532:					
Angelica----------	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
534:					
Pickford----------	100	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
535B:					
Trenary----------	90	Not limited		Not limited	
535D:					
Trenary----------	90	Not limited		Somewhat limited	
				Slope	0.37
536B:					
Menominee, sandy substratum---------	90	Not limited		Somewhat limited	
				Droughty	0.42
537B:					
McMillan----------	85	Not limited		Somewhat limited	
				Droughty	0.20

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
537D:					
McMillan----------	85	Not limited		Somewhat limited	
				Slope	0.37
				Droughty	0.20
538B:					
Menominee, sandy substratum---------	50	Not limited		Somewhat limited	
				Droughty	0.42
McMillan----------	30	Not limited		Somewhat limited	
				Droughty	0.20
540D:					
Deford----------	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
Rubicon----------	25	Not limited		Somewhat limited	
				Droughty	0.93
				Slope	0.37
Au Gres----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.80
541D:					
Kinross----------	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
				Droughty	0.04
Au Gres----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Droughty	0.80
Rubicon----------	15	Not limited		Somewhat limited	
				Droughty	0.93
				Slope	0.37
543B:					
Auger, sandy substratum---------	85	Not limited		Not limited	
546B:					
Kalkaska, deep water table----------	95	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.87
				Too sandy	0.50

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
546D:					
Kalkaska, deep water table	90	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.87
				Too sandy	0.50
				Slope	0.37
547B:					
Rubicon, very deep water table	95	Not limited		Somewhat limited	
				Droughty	0.93
547D:					
Rubicon, very deep water table	95	Not limited		Somewhat limited	
				Droughty	0.93
				Slope	0.37
548B:					
McMillan	55	Not limited		Somewhat limited	
				Droughty	0.20
Trenary	35	Not limited		Not limited	
549B:					
Islandlake	95	Not limited		Somewhat limited	
				Droughty	0.60
549D:					
Islandlake	95	Not limited		Somewhat limited	
				Droughty	0.60
				Slope	0.16
549E:					
Islandlake	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Droughty	0.60
551B:					
Kalkaska, very deep water table	95	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.87
				Too sandy	0.50
551D:					
Kalkaska, very deep water table	95	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.87
				Too sandy	0.50
				Slope	0.37
553:					
Carbondale	60	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Organic matter content	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
553:					
Loxley	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
554B:					
Duck	70	Not limited		Somewhat limited	
				Droughty	0.76
				Depth to saturated zone	0.19
Halfaday	20	Not limited		Somewhat limited	
				Droughty	0.79
				Depth to saturated zone	0.19
555D:					
Hiawatha	35	Not limited		Somewhat limited	
				Droughty	0.96
Deer Park	35	Not limited		Somewhat limited	
				Droughty	0.85
Rubicon	20	Not limited		Somewhat limited	
				Droughty	0.93
				Slope	0.37
557B:					
Kalkaska, very deep water table, burned	95	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.87
				Too sandy	0.50
557D:					
Kalkaska, very deep water table, burned	95	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.87
				Too sandy	0.50
				Slope	0.37
558B:					
Islandlake, burned	95	Not limited		Somewhat limited	
				Droughty	0.60
558D:					
Islandlake, burned	95	Not limited		Somewhat limited	
				Droughty	0.60
				Slope	0.16
559B:					
Kalkaska, deep water table, burned	95	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.87
				Too sandy	0.50

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
560B:					
Islandlake, very deep water table	95	Not limited		Somewhat limited	
				Droughty	0.60
561A:					
Croswell	92	Not limited		Somewhat limited	
				Droughty	0.92
				Depth to saturated zone	0.19
562B:					
Croswell	50	Not limited		Somewhat limited	
				Droughty	0.92
				Depth to saturated zone	0.19
Kinross	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
				Droughty	0.04
563B:					
Halfaday	50	Not limited		Somewhat limited	
				Droughty	0.79
				Depth to saturated zone	0.19
Kinross	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
				Droughty	0.04
564A:					
Ingalls	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
565B:					
Rubicon, deep water table	95	Not limited		Somewhat limited	
				Droughty	0.93
565D:					
Rubicon, deep water table	95	Not limited		Somewhat limited	
				Droughty	0.93
				Slope	0.37
W:					
Water	100	Not rated		Not rated	

Table 10.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
10B:										
Amadon	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
Rock outcrop.										
11B:										
Kalkaska	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
12B:										
Rubicon	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
12D:										
Rubicon	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
12E:										
Rubicon	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
12F:										
Rubicon	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
13B:										
Kalkaska	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
13D:										
Kalkaska	Poor	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
13E:										
Kalkaska	Very poor.	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
13F:										
Kalkaska	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
16A:										
Paquin	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
17A:										
Au Gres	Poor	Fair	Good	Good	Good	Poor	Fair	Fair	Good	Poor.
18:										
Kinross	Very poor.	Poor	Poor	Fair	Fair	Good	Good	Very poor.	Fair	Good.
19A:										
Au Gres	Poor	Fair	Good	Good	Good	Poor	Fair	Fair	Good	Poor.
Deford	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
20E:										
Rousseau	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Neconish	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Finch	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
21B:										
Garlic	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
21D:										
Garlic	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
21E:										
Garlic	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
22E:										
Rousseau	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Neconish	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Deford	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
24B:										
Rousseau	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
24D:										
Rousseau	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
24E:										
Rousseau	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
25B:										
Proper	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Poor.
26A:										
Spot	Poor	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
Finch	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
27A:										
Hendrie	Poor	Poor	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Annanias	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
30:										
Hendrie	Poor	Poor	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
33. Pits, sand and gravel										

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
34B:										
Liminga	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
34E:										
Liminga	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
36:										
Carbondale	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
Lupton	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
Tawas	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
37:										
Dawson	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Greenwood	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Loxley	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
43:										
Ensley	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
56B:										
Shuberts	Poor	Poor	Fair	Fair	Fair	Good	Fair	Fair	Fair	Good.
Wurtsmith	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Meehan	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
61A:										
Ingalls	Fair	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
Caffey	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
62B:										
McMillan	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Greylock	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
62D:										
McMillan	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Greylock	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
62E:										
Greylock	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
McMillan	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
63:										
Deford	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
65:										
Ausable, frequently flooded	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Deford, frequently flooded	Very poor.	Very poor.	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
Tawas, frequently flooded	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
66:										
Markey	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Very poor.	Very poor.	Good.
67B:										
Pelkie, occasionally flooded	Poor	Poor	Good	Good	Good	Poor	Poor	Poor	Good	Poor.
Deford, frequently flooded	Very poor.	Very poor.	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
68F:										
Deer Park	Very poor.	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
69:										
Ruse	Poor	Poor	Fair	Poor	Fair	Good	Poor	Poor	Fair	Fair.
70F:										
Deer Park	Very poor.	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Deford	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
Tawas	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
72:										
Spot	Poor	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
73B:										
Graveraet	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Gulliver	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
76A:										
Shuberts	Poor	Poor	Fair	Fair	Fair	Good	Fair	Fair	Fair	Good.
Manistique	Poor	Poor	Good	Good	Good	Poor	Poor	Good	Good	Fair.
78B:										
Heinz	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Poor.
80F:										
Deer Park	Very poor.	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Dawson	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Wainola	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
84:										
Dawson	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Kinross	Very poor.	Poor	Poor	Fair	Fair	Good	Good	Very poor.	Fair	Good.
86B:										
Wurtsmith	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Tawas	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
Deford	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
87B:										
Longrie	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Amadon	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
87D:										
Amadon	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
Longrie	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
87E:										
Amadon	Very poor.	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Longrie	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Rock outcrop.										

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
88B:										
Cookson	Good	Good	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
Amadon	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
89B:										
Cookson	Good	Good	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
Trenary	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
90:										
Chippeny	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
91:										
Cathro	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
Lupton	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
93A:										
Ruse	Poor	Poor	Fair	Poor	Fair	Good	Poor	Poor	Fair	Fair.
Ensign	Poor	Poor	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Poor.
98B:										
Guardlake	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
98D:										
Guardlake	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
98E:										
Guardlake	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
116F:										
Udipsamments.										
Udorthents.										
119.										
Landfill										
120A:										
Charlevoix	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Ensley	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
122A:										
Wormet	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
123:										
Minocqua	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
125B:										
Stutts	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
125B:										
Kalkaska	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
125D:										
Stutts	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Kalkaska	Poor	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
125E:										
Stutts	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Kalkaska	Poor	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
131B:										
Furlong	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Shingleton	Very poor.	Poor	Poor	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
141A:										
Halfaday	Poor	Poor	Fair	Good	Good	Poor	Poor	Poor	Good	Poor.
145B:										
Noseum	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
155B:										
Karlin	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
160B:										
Paquin	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
Finch	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
218. Pits, quarry										
219B:										
Cublake	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
222:										
Histosols	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Aquents	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
225B:										
Cusino	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
248B:										
Escanaba	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
Greylock	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
249A:										
Iosco	Fair	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
267A:										
Finch	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
287B:										
Hiawatha	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
289B:										
Wallace	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
289D:										
Wallace	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
289E:										
Wallace	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
294B:										
Munising, calcareous substratum	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Yalmer, calcareous substratum	Fair	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
Frohling, calcareous substratum	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
295E:										
Dillingham	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Kalkaska	Very poor.	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
355B:										
Springlake	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
366B:										
Gilchrist	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
367B:										
Cozy	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
400B:										
Amadon	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
Rock outcrop.										
401A:										
Ingalls	Fair	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
490B:										
Pelkie, occasionally flooded	Poor	Poor	Good	Good	Good	Poor	Poor	Poor	Good	Poor.
Arnheim, frequently flooded	Very poor.	Poor	Fair	Poor	Poor	Good	Good	Poor	Poor	Good.
491B:										
Neconish	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Deford, rarely flooded	Very poor.	Very poor.	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
Wainola	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
492D:										
Wurtsmith	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Duck	Fair	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Rubicon	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
493A:										
Deford	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
Meehan	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
Seney	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
498B:										
Bursaw	Poor	Poor	Fair	Good	Good	Poor	Poor	Poor	Good	Poor.
Beavertail	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
505B:										
Graveraet	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
505D:										
Graveraet	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
512A:										
Growton	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
514B:										
Kalkaska, burned--	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
514D:										
Kalkaska, burned--	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
514E:										
Kalkaska, burned--	Very poor.	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
515B:										
Vilas----------	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
516A:										
Deford, drained---	Poor	Poor	Fair	Fair	Good	Poor	Poor	Poor	Fair	Poor.
Meehan, drained---	Poor	Poor	Good	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
517B:										
Mancelona---------	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
517D:										
Mancelona---------	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
518A:										
Deford, frequently flooded----------	Very poor.	Very poor.	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
Seney, frequently flooded----------	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
519B:										
Trenary----------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
520B:										
Rubicon----------	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Sultz----------	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
520D:										
Rubicon----------	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Sultz----------	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
525B:										
Neconish----------	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Kinross----------	Very poor.	Poor	Poor	Fair	Fair	Good	Good	Very poor.	Fair	Good.
Wainola----------	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
526B:										
Graveraet	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Angelica	Poor	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
527B:										
Islandlake	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
McMillan	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
527D:										
Islandlake	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
McMillan	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
527E:										
Islandlake	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
McMillan	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
531B:										
Greylock	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
531D:										
Greylock	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
532:										
Angelica	Poor	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
534:										
Pickford	Poor	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
535B:										
Trenary	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
535D:										
Trenary	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
536B:										
Menominee, sandy substratum	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
537B:										
McMillan	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
537D:										
McMillan	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
538B:										
Menominee, sandy substratum	Fair	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
McMillan	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
540D:										
Deford	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
Rubicon	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Au Gres	Poor	Fair	Good	Good	Good	Poor	Fair	Fair	Good	Poor.
541D:										
Kinross	Very poor.	Poor	Poor	Fair	Fair	Good	Good	Very poor.	Fair	Good.
Au Gres	Poor	Fair	Good	Good	Good	Poor	Fair	Fair	Good	Poor.
Rubicon	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
543B:										
Auger, sandy substratum	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
546B:										
Kalkaska, deep water table	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
546D:										
Kalkaska, deep water table	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
547B:										
Rubicon, very deep water table	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
547D:										
Rubicon, very deep water table	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
548B:										
McMillan	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Trenary	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
549B:										
Islandlake	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
549D:										
Islandlake	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
549E:										
Islandlake	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
551B:										
Kalkaska, very deep water table	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
551D:										
Kalkaska, very deep water table	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
553:										
Carbondale	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
Loxley	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
554B:										
Duck	Fair	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Halfaday	Poor	Poor	Fair	Good	Good	Poor	Poor	Poor	Good	Poor.
555D:										
Hiawatha	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Deer Park	Very poor.	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Rubicon	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
557B:										
Kalkaska, very deep water table, burned	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
557D:										
Kalkaska, very deep water table, burned	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
558B:										
Islandlake, burned	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
558D:										
Islandlake, burned	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
559B:										
Kalkaska, deep water table, burned	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
560B:										
Islandlake, very deep water table	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
561A:										
Croswell	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
562B:										
Croswell	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor.
Kinross	Very poor.	Poor	Poor	Fair	Fair	Good	Good	Very poor.	Fair	Good.
563B:										
Halfaday	Poor	Poor	Fair	Good	Good	Poor	Poor	Poor	Good	Poor.
Kinross	Very poor.	Poor	Poor	Fair	Fair	Good	Good	Very poor.	Fair	Good.
564A:										
Ingalls	Fair	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
565B:										
Rubicon, deep water table	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
565D:										
Rubicon, deep water table	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
W.										
Water										

Table 11a.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10B:							
Amadon	75	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Rock outcrop	25	Not rated		Not rated		Not rated	
11B:							
Kalkaska	90	Not limited		Not limited		Not limited	
12B:							
Rubicon	90	Not limited		Not limited		Not limited	
12D:							
Rubicon	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
12E:							
Rubicon	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
12F:							
Rubicon	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
13B:							
Kalkaska	94	Not limited		Not limited		Not limited	
13D:							
Kalkaska	96	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
13E:							
Kalkaska	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
13F:							
Kalkaska	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
16A:							
Paquin	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to thin cemented pan	0.50	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
		Depth to saturated zone	0.39	Depth to thin cemented pan	1.00	Depth to saturated zone	0.39
17A:							
Au Gres	92	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 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
18:							
Kinross	92	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
19A:							
Au Gres	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Deford	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
20E:							
Rousseau	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Neconish	25	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Finch	20	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 thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
21B:							
Garlic	90	Not limited		Not limited		Not limited	
21D:							
Garlic	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
21E:							
Garlic	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
22E:							
Rousseau	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Neconish	25	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Deford	20	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
24B:							
Rousseau	100	Not limited		Not limited		Not limited	

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
24D:							
Rousseau	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
24E:							
Rousseau	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
25B:							
Proper	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
26A:							
Spot	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Organic matter content	1.00	Ponding	1.00	Ponding	1.00
		Depth to thin cemented pan	0.50			Organic matter content	1.00
Finch	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
27A:							
Hendrie	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Annanias	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
30:							
Hendrie	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
33:							
Pits, sand and gravel	100	Not rated		Not rated		Not rated	
34B:							
Liminga	90	Not limited		Not limited		Not limited	
34E:							
Liminga	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
36:							
Carbondale----------	30	Very limited		Very limited		Very limited	
		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
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Lupton----------	30	Very limited		Very limited		Very limited	
		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
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Tawas----------	30	Very limited		Very limited		Very limited	
		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
		Organic matter content	1.00	Ponding	1.00	Organic matter content	1.00
		Ponding	1.00			Ponding	1.00
37:							
Dawson----------	30	Very limited		Very limited		Very limited	
		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
		Organic matter content	1.00	Ponding	1.00	Organic matter content	1.00
		Ponding	1.00			Ponding	1.00
Greenwood----------	30	Very limited		Very limited		Very limited	
		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
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Loxley----------	30	Very limited		Very limited		Very limited	
		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
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
43:							
Ensley----------	90	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

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
56B:							
Shuberts----------	30	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
		Depth to hard bedrock	0.84	Depth to hard bedrock	1.00	Depth to hard bedrock	0.84
Wurtsmith----------	25	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Meehan----------	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
61A:							
Ingalls----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Caffey----------	30	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
62B:							
McMillan----------	50	Not limited		Not limited		Not limited	
Greylock----------	35	Not limited		Not limited		Not limited	
62D:							
McMillan----------	45	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
Greylock----------	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
62E:							
Greylock----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
McMillan----------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
63:							
Deford----------	92	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
65:							
Ausable, frequently flooded----------	30	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

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
65:							
Deford, frequently flooded----------	30	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
Tawas, frequently flooded----------	30	Very limited		Very limited		Very limited	
		Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00			Organic matter content	1.00
66:							
Markey----------	95	Very limited		Very limited		Very limited	
		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
		Ponding	1.00	Ponding	1.00	Ponding	1.00
67B:							
Pelkie, occasionally flooded----------	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Deford, frequently flooded----------	25	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
68F:							
Deer Park----------	98	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
69:							
Ruse----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
70F:							
Deer Park----------	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Deford----------	20	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

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
70F:							
Tawas	15	Very limited		Very limited		Very limited	
		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
		Organic matter content	1.00	Ponding	1.00	Organic matter content	1.00
		Ponding	1.00			Ponding	1.00
72:							
Spot	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Organic matter content	1.00	Ponding	1.00	Ponding	1.00
		Depth to thin cemented pan	0.50			Organic matter content	1.00
73B:							
Graveraet	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to thin cemented pan	0.50	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
Gulliver	35	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
				Depth to hard bedrock	0.01		
76A:							
Shuberts	55	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
		Depth to hard bedrock	0.84	Depth to hard bedrock	1.00	Depth to hard bedrock	0.84
Manistique	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to hard bedrock	0.64
78B:							
Heinz	100	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
80F:							
Deer Park	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
80F:							
Dawson	20	Very limited		Very limited		Very limited	
		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
		Organic matter content	1.00	Ponding	1.00	Organic matter content	1.00
		Ponding	1.00			Ponding	1.00
Wainola	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
84:							
Dawson	65	Very limited		Very limited		Very limited	
		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
		Organic matter content	1.00	Ponding	1.00	Organic matter content	1.00
		Ponding	1.00			Ponding	1.00
Kinross	30	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
86B:							
Wurtsmith	50	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Tawas	25	Very limited		Very limited		Very limited	
		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
		Organic matter content	1.00	Ponding	1.00	Organic matter content	1.00
		Ponding	1.00			Ponding	1.00
Deford	15	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
87B:							
Longrie	60	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.06	Depth to hard bedrock	1.00	Depth to hard bedrock	0.06
Amadon	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
87D:							
Amadon	45	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.37	Slope	0.37	Slope	1.00

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
87D:							
Longrie	45	Somewhat limited		Very limited		Very limited	
		Slope	0.37	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.06	Slope	0.37	Depth to hard bedrock	0.06
87E:							
Amadon	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Longrie	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.06	Depth to hard bedrock	1.00	Depth to hard bedrock	0.06
Rock outcrop	15	Not rated		Not rated		Not rated	
88B:							
Cookson	55	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.06	Depth to hard bedrock	1.00	Depth to hard bedrock	0.06
Amadon	45	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
89B:							
Cookson	65	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.06	Depth to hard bedrock	1.00	Depth to hard bedrock	0.06
Trenary	30	Not limited		Not limited		Not limited	
90:							
Chippeny	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Depth to hard bedrock	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to hard bedrock	0.64			Depth to hard bedrock	0.64
91:							
Cathro	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Subsidence	1.00	Organic matter content	1.00
		Subsidence	1.00	Ponding	1.00	Subsidence	1.00
		Ponding	1.00			Ponding	1.00

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
91:							
Lupton	45	Very limited		Very limited		Very limited	
		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
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
93A:							
Ruse	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Ensign	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Organic matter content	1.00			Organic matter content	1.00
98B:							
Guardlake	90	Not limited		Not limited		Somewhat limited	
						Slope	0.12
98D:							
Guardlake	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
98E:							
Guardlake	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
116F:							
Udipsamments	50	Not rated		Not rated		Not rated	
Udorthents	50	Not rated		Not rated		Not rated	
119:							
Landfill	100	Not rated		Not rated		Not rated	
120A:							
Charlevoix	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Ensley	30	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
122A:							
Wormet	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
123:							
Minocqua	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
125B:							
Stutts	65	Not limited		Not limited		Not limited	
Kalkaska	35	Not limited		Not limited		Not limited	
125D:							
Stutts	65	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Kalkaska	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
125E:							
Stutts	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Kalkaska	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
131B:							
Furlong	50	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.97	Depth to hard bedrock	1.00	Depth to hard bedrock	0.97
Shingleton	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
141A:							
Halfaday	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
145B:							
Noseum	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
155B:							
Karlin	100	Not limited		Not limited		Not limited	
160B:							
Paquin	55	Somewhat limited		Very limited		Somewhat limited	
		Depth to thin cemented pan	0.50	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
		Depth to saturated zone	0.39	Depth to thin cemented pan	1.00	Depth to saturated zone	0.39
Finch	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
218:							
Pits, quarry--------	100	Not rated		Not rated		Not rated	
219B:							
Cublake----------	100	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
222:							
Histosols----------	50	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
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
Aquents----------	50	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
225B:							
Cusino----------	95	Not limited		Not limited		Not limited	
248B:							
Escanaba----------	50	Not limited		Not limited		Not limited	
Greylock----------	40	Not limited		Not limited		Not limited	
249A:							
Iosco----------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
267A:							
Finch----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
287B:							
Hiawatha----------	85	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.16		
289B:							
Wallace----------	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to thin cemented pan	0.50	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
289D:							
Wallace----------	90	Somewhat limited		Very limited		Very limited	
		Depth to thin cemented pan	0.50	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Slope	0.37	Slope	0.37	Slope	1.00

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
289E:							
Wallace	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to thin cemented pan	0.50	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
294B:							
Munising, calcareous substratum	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Yalmer, calcareous substratum	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Frohling, calcareous substratum	20	Not limited		Not limited		Somewhat limited	
						Slope	0.12
295E:							
Dillingham	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to thin cemented pan	0.99		
Kalkaska	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
355B:							
Springlake	90	Not limited		Not limited		Not limited	
366B:							
Gilchrist	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
367B:							
Cozy	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
400B:							
Amadon	75	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Rock outcrop	25	Not rated		Not rated		Not rated	
401A:							
Ingalls	90	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 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
490B:							
Pelkie, occasionally flooded	65	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Arnheim, frequently flooded	25	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
		Ponding	1.00	Ponding	1.00	Ponding	1.00
491B:							
Neconish	45	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Deford, rarely flooded	25	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
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Wainola	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
492D:							
Wurtsmith	45	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Duck	30	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Rubicon	15	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
493A:							
Deford	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Meehan	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Seney	20	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 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
498B:							
Bursaw	55	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	1.00		
Beavertail	20	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
505B:							
Graveraet	90	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 thin cemented pan	0.50	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
505D:							
Graveraet	95	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 thin cemented pan	0.50	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
512A:							
Growton	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
514B:							
Kalkaska, burned	90	Not limited		Not limited		Not limited	
514D:							
Kalkaska, burned	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
514E:							
Kalkaska, burned	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
515B:							
Vilas	95	Not limited		Not limited		Not limited	
516A:							
Deford, drained	65	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Meehan, drained	25	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.95		
517B:							
Mancelona	90	Not limited		Not limited		Not limited	
517D:							
Mancelona	100	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
518A:							
Deford, frequently flooded	40	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
Seney, frequently flooded	40	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
519B:							
Trenary	85	Not limited		Not limited		Not limited	
520B:							
Rubicon	55	Not limited		Not limited		Not limited	
Sultz	40	Not limited		Not limited		Not limited	
520D:							
Rubicon	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Sultz	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
525B:							
Neconish	35	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Kinross	30	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
Wainola	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
526B:							
Graveraet	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to thin cemented pan	0.50	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
Angelica	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
527B:							
Islandlake	55	Not limited		Not limited		Not limited	
McMillan	45	Not limited		Not limited		Not limited	

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
527D:							
Islandlake----------	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
McMillan----------	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
527E:							
Islandlake----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
McMillan----------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
531B:							
Greylock----------	90	Not limited		Not limited		Not limited	
531D:							
Greylock----------	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
532:							
Angelica----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
534:							
Pickford----------	100	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
		Ponding	1.00	Ponding	1.00	Ponding	1.00
535B:							
Trenary----------	90	Not limited		Not limited		Not limited	
535D:							
Trenary----------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
536B:							
Menominee, sandy substratum---------	90	Not limited		Not limited		Not limited	
537B:							
McMillan----------	85	Not limited		Not limited		Not limited	
537D:							
McMillan----------	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
538B:							
Menominee, sandy substratum---------	50	Not limited		Not limited		Not limited	
McMillan----------	30	Not limited		Not limited		Not limited	

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
540D:							
Deford	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Rubicon	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Au Gres	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
541D:							
Kinross	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Au Gres	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Rubicon	15	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
543B:							
Auger, sandy substratum	85	Not limited		Very limited		Not limited	
				Depth to saturated zone	1.00		
546B:							
Kalkaska, deep water table	95	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.47		
546D:							
Kalkaska, deep water table	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Depth to saturated zone	0.47	Slope	1.00
				Slope	0.37		
547B:							
Rubicon, very deep water table	95	Not limited		Not limited		Not limited	
547D:							
Rubicon, very deep water table	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
548B:							
McMillan	55	Not limited		Not limited		Not limited	
Trenary	35	Not limited		Not limited		Not limited	

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
549B:							
Islandlake----------	95	Not limited		Not limited		Not limited	
549D:							
Islandlake----------	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
549E:							
Islandlake----------	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
551B:							
Kalkaska, very deep water table--------	95	Not limited		Not limited		Not limited	
551D:							
Kalkaska, very deep water table--------	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
553:							
Carbondale----------	60	Very limited		Very limited		Very limited	
		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
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Loxley----------	40	Very limited		Very limited		Very limited	
		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
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
554B:							
Duck----------	70	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Halfaday----------	20	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
555D:							
Hiawatha----------	35	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.16		
Deer Park----------	35	Not limited		Not limited		Not limited	
Rubicon----------	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
557B:							
Kalkaska, very deep water table, burned	95	Not limited		Not limited		Not limited	

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
557D:							
Kalkaska, very deep water table, burned	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
558B:							
Islandlake, burned--	95	Not limited		Not limited		Not limited	
558D:							
Islandlake, burned--	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
559B:							
Kalkaska, deep water table, burned-----	95	Not limited		Not limited		Not limited	
560B:							
Islandlake, very deep water table---	95	Not limited		Not limited		Not limited	
561A:							
Croswell----------	92	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
562B:							
Croswell----------	50	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Kinross----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
563B:							
Halfaday----------	50	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Kinross----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
564A:							
Ingalls----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
565B:							
Rubicon, deep water table----------	95	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.47		

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
565D:							
Rubicon, deep water table	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Depth to saturated zone	0.47	Slope	1.00
				Slope	0.37		
W:							
Water	100	Not rated		Not rated		Not rated	

Table 11b.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
10B:					
Amadon	75	Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Frost action	0.50		
Rock outcrop	25	Not rated		Not rated	
11B:					
Kalkaska	90	Not limited		Very limited	
				Cutbanks caving	1.00
12B:					
Rubicon	90	Not limited		Very limited	
				Cutbanks caving	1.00
12D:					
Rubicon	95	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
12E:					
Rubicon	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
12F:					
Rubicon	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
13B:					
Kalkaska	94	Not limited		Very limited	
				Cutbanks caving	1.00
13D:					
Kalkaska	96	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
13E:					
Kalkaska	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
13F:					
Kalkaska	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
16A:					
Paquin	90	Somewhat limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
17A:					
Au Gres	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
18:					
Kinross	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
19A:					
Au Gres	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
Deford	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
20E:					
Rousseau	40	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
				Slope	1.00
Neconish	25	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Finch	20	Very limited		Very limited	
		Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
21B:					
Garlic	90	Not limited		Very limited	
				Cutbanks caving	1.00
21D:					
Garlic	90	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
21E:					
Garlic	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
22E:					
Rousseau	45	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
				Slope	1.00
Neconish	25	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Deford	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
24B:					
Rousseau	100	Not limited		Very limited	
				Cutbanks caving	1.00
24D:					
Rousseau	90	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
24E:					
Rousseau	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
25B:					
Proper	85	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
26A:					
Spot	50	Very limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
Finch	40	Very limited		Very limited	
		Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
27A:					
Hendrie----------	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Cutbanks caving	0.10
Annanias----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks caving	0.10
30:					
Hendrie----------	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Cutbanks caving	0.10
33:					
Pits, sand and gravel----------	100	Not rated		Not rated	
34B:					
Liminga----------	90	Not limited		Very limited	
				Cutbanks caving	1.00
34E:					
Liminga----------	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
36:					
Carbondale----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Organic matter content	1.00
		Frost action	1.00		
		Ponding	1.00	Ponding	1.00
Lupton----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Organic matter content	1.00
		Frost action	1.00		
		Ponding	1.00	Ponding	1.00
Tawas----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Cutbanks caving	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
37:					
Dawson	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Cutbanks caving	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
Greenwood	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Organic matter content	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00		
Loxley	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Organic matter content	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00		
43:					
Ensley	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks caving	1.00
		Ponding	1.00	Ponding	1.00
56B:					
Shuberts	30	Very limited		Very limited	
		Ponding	1.00	Depth to hard bedrock	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Depth to hard bedrock	0.84	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
Wurtsmith	25	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Meehan	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
61A:					
Ingalls	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
61A:					
Caffey	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
62B:					
McMillan	50	Somewhat limited		Very limited	
		Frost action	0.50	Cutbanks caving	1.00
Greylock	35	Somewhat limited		Somewhat limited	
		Frost action	0.50	Cutbanks caving	0.10
62D:					
McMillan	45	Somewhat limited		Very limited	
		Frost action	0.50	Cutbanks caving	1.00
		Slope	0.16	Slope	0.16
Greylock	35	Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.16
		Slope	0.16	Cutbanks caving	0.10
62E:					
Greylock	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks caving	0.10
McMillan	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks caving	1.00
63:					
Deford	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
65:					
Ausable, frequently flooded	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks caving	1.00
		Flooding	1.00	Organic matter content	1.00
				Flooding	0.80
Deford, frequently flooded	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Flooding	0.80

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
65:					
Tawas, frequently flooded	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Cutbanks caving	1.00
		Frost action	1.00	Organic matter content	1.00
		Flooding	1.00	Flooding	0.80
66:					
Markey	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Cutbanks caving	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
67B:					
Pelkie, occasionally flooded	50	Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	0.19	Cutbanks caving	1.00
				Flooding	0.60
Deford, frequently flooded	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Flooding	0.80
68F:					
Deer Park	98	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
69:					
Ruse	85	Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Cutbanks caving	0.10
70F:					
Deer Park	60	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
Deford	20	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
70F:					
Tawas	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Cutbanks caving	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
72:					
Spot	85	Very limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
73B:					
Graveraet	40	Very limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
				Dense layer	0.50
Gulliver	35	Somewhat limited		Very limited	
		Depth to saturated zone	0.75	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
				Depth to hard bedrock	0.01
76A:					
Shuberts	55	Very limited		Very limited	
		Ponding	1.00	Depth to hard bedrock	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Depth to hard bedrock	0.84	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
Manistique	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	0.64	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
78B:					
Heinz	100	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
80F:					
Deer Park	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
Dawson	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Cutbanks caving	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
Wainola	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
84:					
Dawson	65	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Cutbanks caving	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
Kinross	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
86B:					
Wurtsmith	50	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Tawas	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Cutbanks caving	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
Deford	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
87B:					
Longrie	60	Somewhat limited		Very limited	
		Frost action	0.50	Depth to hard bedrock	1.00
		Depth to hard bedrock	0.06	Cutbanks caving	0.10

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
87B:					
Amadon	30	Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Frost action	0.50		
87D:					
Amadon	45	Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Frost action	0.50	Slope	0.37
		Slope	0.37		
Longrie	45	Somewhat limited		Very limited	
		Frost action	0.50	Depth to hard bedrock	1.00
		Slope	0.37	Slope	0.37
		Depth to hard bedrock	0.06	Cutbanks caving	0.10
87E:					
Amadon	65	Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Frost action	0.50		
Longrie	20	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Frost action	0.50	Slope	1.00
		Depth to hard bedrock	0.06	Cutbanks caving	0.10
Rock outcrop	15	Not rated		Not rated	
88B:					
Cookson	55	Somewhat limited		Very limited	
		Frost action	0.50	Depth to hard bedrock	1.00
		Depth to hard bedrock	0.06	Cutbanks caving	0.10
Amadon	45	Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Frost action	0.50		
89B:					
Cookson	65	Somewhat limited		Very limited	
		Frost action	0.50	Depth to hard bedrock	1.00
		Depth to hard bedrock	0.06	Cutbanks caving	0.10
Trenary	30	Somewhat limited		Somewhat limited	
		Frost action	0.50	Cutbanks caving	0.10

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
90:					
Chippeny	100	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to hard bedrock	1.00
		Frost action	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Depth to hard bedrock	0.64	Organic matter content	1.00
				Cutbanks caving	0.10
91:					
Cathro	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks caving	1.00
		Subsidence	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
Lupton	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Organic matter content	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00		
93A:					
Ruse	50	Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Cutbanks caving	0.10
Ensign	40	Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00		
98B:					
Guardlake	90	Not limited		Very limited	
				Cutbanks caving	1.00
98D:					
Guardlake	95	Somewhat limited		Very limited	
		Slope	0.16	Cutbanks caving	1.00
				Slope	0.16
98E:					
Guardlake	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
116F:					
Udipsamments--------	50	Not rated		Not rated	
Udorthents----------	50	Not rated		Not rated	
119:					
Landfill----------	100	Not rated		Not rated	
120A:					
Charlevoix----------	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks caving	1.00
				Dense layer	0.50
Ensley----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks caving	1.00
		Ponding	1.00	Ponding	1.00
122A:					
Wormet----------	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
123:					
Minocqua----------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks caving	1.00
		Ponding	1.00	Ponding	1.00
125B:					
Stutts----------	65	Not limited		Very limited	
				Cutbanks caving	1.00
Kalkaska----------	35	Not limited		Very limited	
				Cutbanks caving	1.00
125D:					
Stutts----------	65	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
Kalkaska----------	25	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
125E:					
Stutts----------	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
Kalkaska----------	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
131B:					
Furlong	50	Somewhat limited		Very limited	
		Depth to hard bedrock	0.97	Depth to hard bedrock	1.00
				Cutbanks caving	1.00
Shingleton	40	Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
				Cutbanks caving	0.10
141A:					
Halfaday	90	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
145B:					
Noseum	85	Somewhat limited		Very limited	
		Frost action	0.50	Depth to saturated zone	1.00
		Depth to saturated zone	0.19	Cutbanks caving	1.00
155B:					
Karlin	100	Not limited		Very limited	
				Cutbanks caving	1.00
160B:					
Paquin	55	Somewhat limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Finch	45	Very limited		Very limited	
		Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
218:					
Pits, quarry	100	Not rated		Not rated	
219B:					
Cublake	100	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
222:					
Histosols	50	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	Organic matter content	1.00
		Frost action	1.00		

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
222:					
Aquents	50	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00		
225B:					
Cusino	95	Not limited		Very limited	
				Cutbanks caving	1.00
248B:					
Escanaba	50	Not limited		Very limited	
				Cutbanks caving	1.00
Greylock	40	Somewhat limited		Somewhat limited	
		Frost action	0.50	Cutbanks caving	0.10
249A:					
Iosco	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
267A:					
Finch	85	Very limited		Very limited	
		Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
287B:					
Hiawatha	85	Not limited		Very limited	
				Cutbanks caving	1.00
				Depth to saturated zone	0.16
289B:					
Wallace	85	Somewhat limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
				Cutbanks caving	1.00
289D:					
Wallace	90	Somewhat limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
289E:					
Wallace	95	Very limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
294B:					
Munising, calcareous substratum	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
				Dense layer	0.50
Yalmer, calcareous substratum	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Dense layer	0.50
Frohling, calcareous substratum	20	Somewhat limited		Very limited	
		Frost action	0.50	Cutbanks caving	1.00
				Dense layer	0.50
295E:					
Dillingham	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
				Depth to thin cemented pan	0.99
				Dense layer	0.50
Kalkaska	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
355B:					
Springlake	90	Not limited		Very limited	
				Cutbanks caving	1.00
366B:					
Gilchrist	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Dense layer	0.50
367B:					
Cozy	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
				Dense layer	0.50
400B:					
Amadon	75	Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Frost action	0.50		
Rock outcrop	25	Not rated		Not rated	

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
401A:					
Ingalls----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
490B:					
Pelkie, occasionally flooded----------	65	Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	0.19	Cutbanks caving	1.00
				Flooding	0.60
Arnheim, frequently flooded----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks caving	1.00
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	0.80
491B:					
Neconish----------	45	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Deford, rarely flooded----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
		Flooding	0.40		
Wainola----------	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
492D:					
Wurtsmith----------	45	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Duck----------	30	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Rubicon----------	15	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
493A:					
Deford	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
Meehan	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Seney	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
498B:					
Bursaw	55	Not limited		Very limited	
				Cutbanks caving	1.00
				Depth to saturated zone	1.00
Beavertail	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks caving	1.00
		Ponding	1.00	Ponding	1.00
				Dense layer	0.50
505B:					
Graveraet	90	Very limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
				Dense layer	0.50
505D:					
Graveraet	95	Very limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
		Slope	0.04	Dense layer	0.50
				Slope	0.04
512A:					
Growton	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
514B:					
Kalkaska, burned	90	Not limited		Very limited	
				Cutbanks caving	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
514D:					
Kalkaska, burned----	95	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
514E:					
Kalkaska, burned----	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
515B:					
Vilas----------	95	Not limited		Very limited	
				Cutbanks caving	1.00
516A:					
Deford, drained-----	65	Somewhat limited		Very limited	
		Frost action	0.50	Depth to saturated zone	1.00
		Depth to saturated zone	0.19	Cutbanks caving	1.00
Meehan, drained-----	25	Not limited		Very limited	
				Cutbanks caving	1.00
				Depth to saturated zone	0.95
517B:					
Mancelona----------	90	Not limited		Very limited	
				Cutbanks caving	1.00
517D:					
Mancelona----------	100	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
518A:					
Deford, frequently flooded----------	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Flooding	0.80
Seney, frequently flooded----------	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks caving	1.00
				Flooding	0.80
519B:					
Trenary----------	85	Somewhat limited		Somewhat limited	
		Frost action	0.50	Cutbanks caving	0.10
520B:					
Rubicon----------	55	Not limited		Very limited	
				Cutbanks caving	1.00
Sultz----------	40	Not limited		Very limited	
				Cutbanks caving	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
520D:					
Rubicon----------	55	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
Sultz----------	40	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
525B:					
Neconish----------	35	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Kinross----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
Wainola----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
526B:					
Graveraet----------	45	Very limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
				Dense layer	0.50
Angelica----------	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Cutbanks caving	0.10
527B:					
Islandlake----------	55	Not limited		Very limited	
				Cutbanks caving	1.00
McMillan----------	45	Somewhat limited		Very limited	
		Frost action	0.50	Cutbanks caving	1.00
527D:					
Islandlake----------	55	Somewhat limited		Very limited	
		Slope	0.16	Cutbanks caving	1.00
				Slope	0.16
McMillan----------	35	Somewhat limited		Very limited	
		Frost action	0.50	Cutbanks caving	1.00
		Slope	0.16	Slope	0.16

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
527E:					
Islandlake----------	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
McMillan----------	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks caving	1.00
531B:					
Greylock----------	90	Somewhat limited		Somewhat limited	
		Frost action	0.50	Cutbanks caving	0.10
531D:					
Greylock----------	85	Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37
		Slope	0.37	Cutbanks caving	0.10
532:					
Angelica----------	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Cutbanks caving	0.10
534:					
Pickford----------	100	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Ponding	1.00
		Shrink-swell	1.00	Too clayey	0.50
		Ponding	1.00	Cutbanks caving	0.10
535B:					
Trenary----------	90	Somewhat limited		Somewhat limited	
		Frost action	0.50	Cutbanks caving	0.10
535D:					
Trenary----------	90	Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37
		Slope	0.37	Cutbanks caving	0.10
536B:					
Menominee, sandy substratum---------	90	Not limited		Very limited	
				Cutbanks caving	1.00
537B:					
McMillan----------	85	Somewhat limited		Very limited	
		Frost action	0.50	Cutbanks caving	1.00
537D:					
McMillan----------	85	Somewhat limited		Very limited	
		Frost action	0.50	Cutbanks caving	1.00
		Slope	0.37	Slope	0.37

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
538B:					
Menominee, sandy substratum	50	Not limited		Very limited	
				Cutbanks caving	1.00
McMillan	30	Somewhat limited		Very limited	
		Frost action	0.50	Cutbanks caving	1.00
540D:					
Deford	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
Rubicon	25	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
Au Gres	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
541D:					
Kinross	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
Au Gres	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
Rubicon	15	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
543B:					
Auger, sandy substratum	85	Somewhat limited		Very limited	
		Frost action	0.50	Cutbanks caving	1.00
				Depth to saturated zone	1.00
546B:					
Kalkaska, deep water table	95	Not limited		Very limited	
				Cutbanks caving	1.00
				Depth to saturated zone	0.47

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
546D:					
Kalkaska, deep water table	90	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Depth to saturated zone	0.47
				Slope	0.37
547B:					
Rubicon, very deep water table	95	Not limited		Very limited	
				Cutbanks caving	1.00
547D:					
Rubicon, very deep water table	95	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
548B:					
McMillan	55	Somewhat limited		Very limited	
		Frost action	0.50	Cutbanks caving	1.00
Trenary	35	Somewhat limited		Somewhat limited	
		Frost action	0.50	Cutbanks caving	0.10
549B:					
Islandlake	95	Not limited		Very limited	
				Cutbanks caving	1.00
549D:					
Islandlake	95	Somewhat limited		Very limited	
		Slope	0.16	Cutbanks caving	1.00
				Slope	0.16
549E:					
Islandlake	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
				Cutbanks caving	1.00
551B:					
Kalkaska, very deep water table	95	Not limited		Very limited	
				Cutbanks caving	1.00
551D:					
Kalkaska, very deep water table	95	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
553:					
Carbondale	60	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Organic matter content	1.00
		Frost action	1.00		
		Ponding	1.00	Ponding	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
553:					
Loxley	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Organic matter content	1.00
		Frost action	1.00		
		Ponding	1.00	Ponding	1.00
554B:					
Duck	70	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Halfaday	20	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
555D:					
Hiawatha	35	Not limited		Very limited	
				Cutbanks caving	1.00
				Depth to saturated zone	0.16
Deer Park	35	Not limited		Very limited	
				Cutbanks caving	1.00
Rubicon	20	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
557B:					
Kalkaska, very deep water table, burned	95	Not limited		Very limited	
				Cutbanks caving	1.00
557D:					
Kalkaska, very deep water table, burned	95	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Slope	0.37
558B:					
Islandlake, burned	95	Not limited		Very limited	
				Cutbanks caving	1.00
558D:					
Islandlake, burned	95	Somewhat limited		Very limited	
		Slope	0.16	Cutbanks caving	1.00
				Slope	0.16
559B:					
Kalkaska, deep water table, burned	95	Not limited		Very limited	
				Cutbanks caving	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
560B:					
Islandlake, very deep water table---	95	Not limited		Very limited	
				Cutbanks caving	1.00
561A:					
Croswell----------	92	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
562B:					
Croswell----------	50	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Kinross----------	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
563B:					
Halfaday----------	50	Somewhat limited		Very limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Kinross----------	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Cutbanks caving	1.00
		Frost action	0.50	Ponding	1.00
564A:					
Ingalls----------	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	0.50	Cutbanks caving	1.00
565B:					
Rubicon, deep water table----------	95	Not limited		Very limited	
				Cutbanks caving	1.00
				Depth to saturated zone	0.47
565D:					
Rubicon, deep water table----------	95	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks caving	1.00
				Depth to saturated zone	0.47
				Slope	0.37

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
W:					
Water	100	Not rated		Not rated	

Table 12a.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
10B:					
Amadon	75	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Seepage	0.53
				Slope	0.32
Rock outcrop	25	Not rated		Not rated	
11B:					
Kalkaska	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00		
12B:					
Rubicon	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.08
		Seepage	1.00		
12D:					
Rubicon	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	1.00
		Seepage	1.00		
		Slope	0.37		
12E:					
Rubicon	95	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
				Seepage	1.00
		Slope	1.00		
		Seepage	1.00		
12F:					
Rubicon	100	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
				Seepage	1.00
		Slope	1.00		
		Seepage	1.00		
13B:					
Kalkaska	94	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.08
		Seepage	1.00		

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
13D:					
Kalkaska	96	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.37		
13E:					
Kalkaska	100	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage	1.00		
13F:					
Kalkaska	100	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage	1.00		
16A:					
Paquin	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
17A:					
Au Gres	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
18:					
Kinross	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
19A:					
Au Gres	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
19A:					
Deford	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
20E:					
Rousseau	40	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	1.00		
Neconish	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Slope	0.08
Finch	20	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
21B:					
Garlic	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
21D:					
Garlic	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.37		
21E:					
Garlic	90	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage	1.00		
22E:					
Rousseau	45	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	1.00		

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
22E:					
Neconish	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Slope	0.08
Deford	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
24B:					
Rousseau	100	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
24D:					
Rousseau	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.37		
24E:					
Rousseau	90	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage	1.00		
25B:					
Proper	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
26A:					
Spot	50	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
				Organic matter content	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
26A:					
Finch	40	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
27A:					
Hendrie	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
Annanias	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.32	Seepage	0.68
30:					
Hendrie	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
33:					
Pits, sand and gravel	100	Not rated		Not rated	
34B:					
Liminga	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
34E:					
Liminga	95	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage	1.00		
36:					
Carbondale	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Subsidence	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00
		Ponding	1.00	Ponding	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
36:					
Lupton	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Subsidence	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00
		Ponding	1.00	Ponding	1.00
Tawas	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
37:					
Dawson	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
Greenwood	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Subsidence	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00
		Ponding	1.00	Ponding	1.00
Loxley	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Subsidence	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00
		Ponding	1.00	Ponding	1.00
43:					
Ensley	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Slow water movement	0.50	Seepage	0.50
56B:					
Shuberts	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Organic matter content	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
56B:					
Wurtsmith----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Slope	0.08
Meehan----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
61A:					
Ingalls----------	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
Caffey----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Slow water movement	0.82	Ponding	1.00
				Organic matter content	1.00
62B:					
McMillan----------	50	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
Greylock----------	35	Somewhat limited		Somewhat limited	
		Slow water movement	0.92	Seepage	0.50
				Slope	0.08
62D:					
McMillan----------	45	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.16		
Greylock----------	35	Somewhat limited		Very limited	
		Slow water movement	0.92	Slope	1.00
		Slope	0.16	Seepage	0.50
62E:					
Greylock----------	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.92	Seepage	0.50

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
62E:					
McMillan----------	35	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage	1.00		
63:					
Deford----------	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
65:					
Ausable, frequently flooded----------	30	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
				Organic matter content	1.00
Deford, frequently flooded----------	30	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Organic matter content	1.00
Tawas, frequently flooded----------	30	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Organic matter content	1.00
66:					
Markey----------	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Subsidence	1.00	Organic matter content	1.00
		Ponding	1.00		

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
67B:					
Pelkie, occasionally flooded	50	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
Deford, frequently flooded	25	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Organic matter content	1.00
68F:					
Deer Park	98	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage	1.00		
69:					
Ruse	85	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
		Seepage	1.00	Seepage	1.00
		Ponding	1.00	Ponding	1.00
70F:					
Deer Park	60	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage	1.00		
Deford	20	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Organic matter content	1.00
Tawas	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
72:					
Spot	85	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
				Organic matter content	1.00
73B:					
Graveraet	40	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Seepage	0.50
				Slope	0.08
Gulliver	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Slow water movement	0.46	Depth to saturated zone	1.00
		Depth to bedrock	0.36	Slope	0.08
				Depth to hard bedrock	0.01
76A:					
Shuberts	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Organic matter content	1.00
Manistique	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
78B:					
Heinz	100	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Slope	0.08

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
80F:					
Deer Park----------	50	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage	1.00		
Dawson----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
Wainola----------	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
84:					
Dawson----------	65	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
Kinross----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
86B:					
Wurtsmith----------	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Slope	0.08
Tawas----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
86B:					
Deford	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
87B:					
Longrie	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	0.50	Seepage	0.50
				Slope	0.08
Amadon	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Seepage	0.53
				Slope	0.32
87D:					
Amadon	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.37	Slope	1.00
				Seepage	0.53
Longrie	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	0.50	Slope	1.00
		Slope	0.37	Seepage	0.50
87E:					
Amadon	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	0.53
Longrie	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
Rock outcrop	15	Not rated		Not rated	
88B:					
Cookson	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	0.50	Seepage	0.50

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
88B:					
Amadon	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Seepage	0.53
				Slope	0.32
89B:					
Cookson	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	0.50	Seepage	0.50
Trenary	30	Somewhat limited		Somewhat limited	
		Slow water movement	0.98	Seepage	0.32
				Slope	0.08
90:					
Chippeny	100	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
		Ponding	1.00	Seepage	1.00
		Slow water movement	1.00	Ponding	1.00
				Organic matter content	1.00
91:					
Cathro	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	1.00
		Ponding	1.00	Ponding	1.00
				Organic matter content	1.00
Lupton	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Subsidence	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00
		Ponding	1.00	Ponding	1.00
93A:					
Ruse	50	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
		Seepage	1.00	Seepage	1.00
		Ponding	1.00	Ponding	1.00
Ensign	40	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
				Seepage	0.50

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
98B:					
Guardlake	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.68
		Seepage	1.00		
98D:					
Guardlake	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	1.00
		Seepage	1.00		
		Slope	0.16		
98E:					
Guardlake	100	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
				Seepage	1.00
		Slope	1.00		
		Seepage	1.00		
116F:					
Udipsamments	50	Not rated		Not rated	
Udorthents	50	Not rated		Not rated	
119:					
Landfill	100	Not rated		Not rated	
120A:					
Charlevoix	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.18
Ensley	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Slow water movement	0.50	Seepage	0.50
122A:					
Wormet	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
				Depth to saturated zone	1.00
		Filtering capacity	1.00		
		Seepage	1.00		
123:					
Minocqua	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
				Depth to saturated zone	1.00
		Filtering capacity	1.00		
				Ponding	1.00
		Seepage	1.00	Organic matter content	1.00
		Ponding	1.00		

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
125B:					
Stutts	65	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
Kalkaska	35	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00		
125D:					
Stutts	65	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.37		
Kalkaska	25	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.37		
125E:					
Stutts	50	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage	1.00		
Kalkaska	50	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage	1.00		
131B:					
Furlong	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage	1.00	Seepage	1.00
				Slope	0.32
Shingleton	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage	1.00	Slope	0.08
141A:					
Halfaday	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
145B:					
Noseum	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
155B:					
Karlin	100	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00		
160B:					
Paquin	55	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
				Slope	0.08
Finch	45	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
218:					
Pits, quarry	100	Not rated		Not rated	
219B:					
Cublake	100	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Slow water movement	0.50	Depth to saturated zone	1.00
				Slope	0.08
222:					
Histosols	50	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Seepage	1.00
Aquents	50	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
225B:					
Cusino	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
248B:					
Escanaba	50	Somewhat limited		Very limited	
		Slow water movement	0.92	Seepage	1.00
				Slope	0.08
Greylock	40	Somewhat limited		Somewhat limited	
		Slow water movement	0.92	Seepage	0.50
				Slope	0.08
249A:					
Iosco	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Slow water movement	0.50	Depth to saturated zone	1.00
267A:					
Finch	85	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	1.00
287B:					
Hiawatha	85	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00		
		Depth to saturated zone	0.43		
289B:					
Wallace	85	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Seepage	1.00	Seepage	1.00
				Slope	0.08
289D:					
Wallace	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Seepage	1.00	Seepage	1.00
		Slope	0.37	Slope	1.00
289E:					
Wallace	95	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
294B:					
Munising, calcareous substratum---------	40	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.68
				Slope	0.08
Yalmer, calcareous substratum---------	30	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Slope	0.08
Frohling, calcareous substratum---------	20	Very limited		Somewhat limited	
		Slow water movement	1.00	Slope	0.68
				Seepage	0.50
295E:					
Dillingham----------	50	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00
Kalkaska----------	40	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage	1.00		
355B:					
Springlake----------	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
366B:					
Gilchrist----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
				Slope	0.08
367B:					
Cozy----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Seepage	0.50
400B:					
Amadon----------	75	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Seepage	0.53
				Slope	0.32

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
400B:					
Rock outcrop--------	25	Not rated		Not rated	
401A:					
Ingalls----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
490B:					
Pelkie, occasionally flooded----------	65	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
Arnheim, frequently flooded----------	25	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Slow water movement	0.46	Seepage	0.53
491B:					
Neconish----------	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Slope	0.08
Deford, rarely flooded----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
		Flooding	0.40	Flooding	0.40
Wainola----------	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
492D:					
Wurtsmith----------	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Slope	0.08
Duck----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
Rubicon----------	15	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.37		
493A:					
Deford----------	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
Meehan----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
Seney----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
498B:					
Bursaw----------	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
				Slope	0.32
Beavertail----------	20	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
				Seepage	0.50

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
505B:					
Graveraet	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Seepage	0.50
505D:					
Graveraet	95	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.04	Slope	1.00
				Seepage	0.50
512A:					
Growton	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.98	Seepage	0.68
514B:					
Kalkaska, burned	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
514D:					
Kalkaska, burned	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.37		
514E:					
Kalkaska, burned	95	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage	1.00		
515B:					
Vilas	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
516A:					
Deford, drained	65	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Organic matter content	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
516A:					
Meehan, drained	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
517B:					
Mancelona	90	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
				Slope	0.08
517D:					
Mancelona	100	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Slope	0.37	Slope	1.00
518A:					
Deford, frequently flooded	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Organic matter content	1.00
Seney, frequently flooded	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
519B:					
Trenary	85	Somewhat limited		Somewhat limited	
		Slow water movement	0.98	Seepage	0.32
				Slope	0.08
520B:					
Rubicon	55	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
Sultz	40	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
				Slope	0.08
520D:					
Rubicon	55	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.37		

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
520D:					
Sultz	40	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Slope	0.37	Slope	1.00
525B:					
Neconish	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Slope	0.08
Kinross	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
Wainola	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
526B:					
Graveraet	45	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Seepage	0.50
Angelica	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
527B:					
Islandlake	55	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
McMillan	45	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
527D:					
Islandlake----------	55	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	1.00
		Seepage	1.00		
		Slope	0.16		
McMillan----------	35	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	1.00
		Seepage	1.00		
		Slope	0.16		
527E:					
Islandlake----------	55	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
				Seepage	1.00
		Slope	1.00		
		Seepage	1.00		
McMillan----------	35	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
				Seepage	1.00
		Slope	1.00		
		Seepage	1.00		
531B:					
Greylock----------	90	Somewhat limited		Somewhat limited	
		Slow water movement	0.92	Seepage	0.50
				Slope	0.08
531D:					
Greylock----------	85	Somewhat limited		Very limited	
		Slow water movement	0.92	Slope	1.00
				Seepage	0.50
		Slope	0.37		
532:					
Angelica----------	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Ponding	1.00
				Organic matter content	1.00
		Ponding	1.00		
534:					
Pickford----------	100	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00		
535B:					
Trenary----------	90	Somewhat limited		Somewhat limited	
		Slow water movement	0.98	Seepage	0.32
				Slope	0.32

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
535D:					
Trenary	90	Somewhat limited		Very limited	
		Slow water movement	0.98	Slope	1.00
		Slope	0.37	Seepage	0.32
536B:					
Menominee, sandy substratum	90	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	0.32
537B:					
McMillan	85	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
537D:					
McMillan	85	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.37		
538B:					
Menominee, sandy substratum	50	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	0.32
McMillan	30	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
540D:					
Deford	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
Rubicon	25	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.37		
Au Gres	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
541D:					
Kinross	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
Au Gres	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
Rubicon	15	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.37		
543B:					
Auger, sandy substratum	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	0.50
		Slow water movement	0.50	Slope	0.08
546B:					
Kalkaska, deep water table	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	0.40
		Depth to saturated zone	0.94		
546D:					
Kalkaska, deep water table	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Depth to saturated zone	0.94	Depth to saturated zone	0.40
		Slope	0.37		
547B:					
Rubicon, very deep water table	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
547D:					
Rubicon, very deep water table	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	1.00
		Seepage	1.00		
		Slope	0.37		
548B:					
McMillan	55	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.08
		Seepage	1.00		
Trenary	35	Somewhat limited		Somewhat limited	
		Slow water movement	0.98	Seepage	0.32
				Slope	0.32
549B:					
Islandlake	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.08
		Seepage	1.00		
549D:					
Islandlake	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	1.00
		Seepage	1.00		
		Slope	0.16		
549E:					
Islandlake	95	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
				Seepage	1.00
		Slope	1.00		
		Seepage	1.00		
551B:					
Kalkaska, very deep water table	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00		
551D:					
Kalkaska, very deep water table	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	1.00
		Seepage	1.00		
		Slope	0.37		

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
553:					
Carbondale----------	60	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Subsidence	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00
		Ponding	1.00	Ponding	1.00
Loxley----------	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Organic matter content	1.00
		Subsidence	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00
		Ponding	1.00	Ponding	1.00
554B:					
Duck----------	70	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
Halfaday----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
555D:					
Hiawatha----------	35	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00		
		Depth to saturated zone	0.43		
Deer Park----------	35	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.32
Rubicon----------	20	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.37		
557B:					
Kalkaska, very deep water table, burned	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
557D:					
Kalkaska, very deep water table, burned	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.37		
558B:					
Islandlake, burned--	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
558D:					
Islandlake, burned--	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Slope	0.16		
559B:					
Kalkaska, deep water table, burned-----	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00		
560B:					
Islandlake, very deep water table---	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	0.08
561A:					
Croswell----------	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
562B:					
Croswell----------	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Slope	0.08
Kinross----------	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
563B:					
Halfaday	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00		
Kinross	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
564A:					
Ingalls	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
565B:					
Rubicon, deep water table	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	0.40
		Depth to saturated zone	0.94	Slope	0.08
565D:					
Rubicon, deep water table	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage	1.00	Slope	1.00
		Depth to saturated zone	0.94	Depth to saturated zone	0.40
		Slope	0.37		
W:					
Water	100	Not rated		Not rated	

Table 12b.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10B:							
Amadon----------	75	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Rock outcrop--------	25	Not rated		Not rated		Not rated	
11B:							
Kalkaska----------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
12B:							
Rubicon----------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
12D:							
Rubicon----------	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
12E:							
Rubicon----------	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
12F:							
Rubicon----------	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
13B:							
Kalkaska----------	94	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
13D:							
Kalkaska----------	96	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
13E:							
Kalkaska----------	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
13F:							
Kalkaska----------	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
16A:							
Paquin----------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Seepage	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Too sandy	1.00	Seepage	1.00	Seepage	1.00
		Depth to thin cemented pan	0.50			Depth to saturated zone	0.86
17A:							
Au Gres----------	92	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
18:							
Kinross----------	92	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
19A:							
Au Gres----------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Deford----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
20E:							
Rousseau----------	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	1.00	Seepage	1.00
		Slope	1.00			Slope	1.00
Neconish----------	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20E:							
Finch----------	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
21B:							
Garlic----------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
21D:							
Garlic----------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
21E:							
Garlic----------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
22E:							
Rousseau----------	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	1.00	Seepage	1.00
		Slope	1.00			Slope	1.00
Neconish----------	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86
Deford----------	20	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
24B:							
Rousseau----------	100	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
24D:							
Rousseau----------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
24E:							
Rousseau	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
25B:							
Proper	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86
26A:							
Spot	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Seepage	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Seepage	1.00	Seepage	1.00
		Organic matter content	1.00	Ponding	1.00	Ponding	1.00
		Depth to thin cemented pan	0.50			Organic matter content	1.00
Finch	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
27A:							
Hendrie	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Annanias	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
30:							
Hendrie	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
33:							
Pits, sand and gravel	100	Not rated		Not rated		Not rated	
34B:							
Liminga	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
34E:							
Liminga----------	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
36:							
Carbondale----------	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Seepage	1.00	Organic matter content	1.00
				Ponding	1.00		
		Seepage	1.00			Ponding	1.00
		Ponding	1.00			Seepage	0.21
Lupton----------	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Seepage	1.00	Organic matter content	1.00
				Ponding	1.00		
		Seepage	1.00			Ponding	1.00
		Ponding	1.00			Seepage	0.16
Tawas----------	30	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
37:							
Dawson----------	30	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
Greenwood----------	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Seepage	1.00	Organic matter content	1.00
				Ponding	1.00		
		Seepage	1.00			Ponding	1.00
		Ponding	1.00			Seepage	0.21
Loxley----------	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Seepage	1.00	Organic matter content	1.00
				Ponding	1.00		
		Seepage	1.00			Ponding	1.00
		Ponding	1.00			Seepage	0.15
43:							
Ensley----------	90	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

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
56B:							
Shuberts----------	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to bedrock	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Depth to bedrock	1.00	Seepage	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Depth to bedrock	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Wurtsmith----------	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86
Meehan----------	20	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
61A:							
Ingalls----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Seepage	1.00		
Caffey----------	30	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	Seepage	1.00	Ponding	1.00
				Ponding	1.00		
62B:							
McMillan----------	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Greylock----------	35	Not limited		Not limited		Not limited	
62D:							
McMillan----------	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.16	Seepage	1.00
		Slope	0.16			Slope	0.16
Greylock----------	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.16	Slope	0.16	Slope	0.16
62E:							
Greylock----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
McMillan----------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
63:							
Deford----------	92	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
65:							
Ausable, frequently flooded----------	30	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	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00				
Deford, frequently flooded----------	30	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	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00				
Tawas, frequently flooded----------	30	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	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00				
66:							
Markey----------	95	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
67B:							
Pelkie, occasionally flooded----------	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too sandy	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Seepage	1.00	Depth to saturated zone	0.86
		Too sandy	1.00				
Deford, frequently flooded----------	25	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	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00				

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
68F:							
Deer Park----------	98	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
69:							
Ruse----------	85	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
		Seepage	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00			Seepage	0.21
70F:							
Deer Park----------	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Deford----------	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Tawas----------	15	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
72:							
Spot----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Seepage	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Seepage	1.00	Seepage	1.00
		Organic matter content	1.00	Ponding	1.00	Ponding	1.00
		Depth to thin cemented pan	0.50			Organic matter content	1.00
73B:							
Graveraet----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to thin cemented pan	0.50	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Gulliver----------	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	0.01
				Depth to bedrock	0.01		

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
76A:							
Shuberts----------	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to bedrock	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Depth to bedrock	1.00	Seepage	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Depth to bedrock	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Manistique----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Seepage	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Depth to bedrock	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
78B:							
Heinz----------	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86
						Gravel content	0.44
80F:							
Deer Park----------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Dawson----------	20	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
Wainola----------	15	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	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Too sandy	0.50
84:							
Dawson----------	65	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
Kinross----------	30	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
86B:							
Wurtsmith----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86
Tawas----------	25	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
Deford----------	15	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
87B:							
Longrie----------	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Amadon----------	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
87D:							
Amadon----------	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
Longrie----------	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
87E:							
Amadon----------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
Longrie----------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
Rock outcrop--------	15	Not rated		Not rated		Not rated	
88B:							
Cookson----------	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Amadon----------	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
89B:							
Cookson----------	65	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
89B:							
Trenary	30	Not limited		Not limited		Not limited	
90:							
Chippeny	100	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
		Organic matter content	1.00	Seepage	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
						Seepage	0.16
91:							
Cathro	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Seepage	1.00	Ponding	1.00
				Ponding	1.00		
Lupton	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Seepage	1.00	Organic matter content	1.00
		Seepage	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00			Seepage	0.16
93A:							
Ruse	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00			Seepage	0.21
Ensign	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00			Organic matter content	1.00
98B:							
Guardlake	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
						Gravel content	0.02
98D:							
Guardlake	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.16	Seepage	1.00
		Slope	0.16			Slope	0.16
						Gravel content	0.02

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
98E:							
Guardlake	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
						Gravel content	0.02
116F:							
Udipsamments	50	Not rated		Not rated		Not rated	
Udorthents	50	Not rated		Not rated		Not rated	
119:							
Landfill	100	Not rated		Not rated		Not rated	
120A:							
Charlevoix	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Ensley	30	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
122A:							
Wormet	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
123:							
Minocqua	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
125B:							
Stutts	65	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Kalkaska	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
125D:							
Stutts	65	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
Kalkaska	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
125E:							
Stutts	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Kalkaska	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
131B:							
Furlong	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Shingleton	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00				
141A:							
Halfaday	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86
145B:							
Noseum	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86
155B:							
Karlin	100	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
160B:							
Paquin	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Seepage	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Too sandy	1.00	Seepage	1.00	Seepage	1.00
		Depth to thin cemented pan	0.50			Depth to saturated zone	0.86
Finch	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
218:							
Pits, quarry	100	Not rated		Not rated		Not rated	

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
219B:							
Cublake	100	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Too sandy	0.50	Seepage	1.00	Too sandy	0.50
222:							
Histosols	50	Not rated		Very limited		Very limited	
		Not rated; pH		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Seepage	1.00	Organic matter content	1.00
		Organic matter content	1.00			Seepage	0.16
Aquents	50	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
225B:							
Cusino	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
248B:							
Escanaba	50	Not limited		Very limited		Not limited	
				Seepage	1.00		
Greylock	40	Not limited		Not limited		Not limited	
249A:							
Iosco	95	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		
267A:							
Finch	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
287B:							
Hiawatha	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00				
289B:							
Wallace	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Too sandy	1.00	Seepage	1.00	Too sandy	1.00
		Depth to thin cemented pan	0.50			Seepage	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
289D:							
Wallace----------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Too sandy	1.00	Seepage	1.00	Too sandy	1.00
		Depth to thin cemented pan	0.50	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
289E:							
Wallace----------	95	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Seepage	1.00	Slope	1.00	Slope	1.00
		Too sandy	1.00	Seepage	1.00	Too sandy	1.00
		Depth to thin cemented pan	0.50			Seepage	1.00
294B:							
Munising, calcareous substratum---------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too sandy	0.50			Too sandy	0.50
Yalmer, calcareous substratum---------	30	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		
Frohling, calcareous substratum---------	20	Somewhat limited		Not limited		Somewhat limited	
		Too sandy	0.50			Too sandy	0.50
295E:							
Dillingham----------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Seepage	1.00	Slope	1.00	Slope	1.00
		Depth to thin cemented pan	0.50	Seepage	1.00	Seepage	0.52
		Too sandy	0.50			Too sandy	0.50
Kalkaska----------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
355B:							
Springlake----------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
366B:							
Gilchrist----------	90	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	Seepage	1.00	Too sandy	1.00
						Seepage	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
367B:							
Cozy	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
400B:							
Amadon	75	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Rock outcrop	25	Not rated		Not rated		Not rated	
401A:							
Ingalls	90	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	1.00	Seepage	1.00		
490B:							
Pelkie, occasionally flooded	65	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too sandy	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Seepage	1.00	Depth to saturated zone	0.86
		Too sandy	1.00				
Arnheim, frequently flooded	25	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	1.00
		Too sandy	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00				
491B:							
Neconish	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86
Deford, rarely flooded	25	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00	Flooding	0.40	Ponding	1.00
		Flooding	0.40				
Wainola	15	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	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Too sandy	0.50

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
492D:							
Wurtsmith----------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86
Duck----------	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86
Rubicon----------	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
493A:							
Deford----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
Meehan----------	25	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Seney----------	20	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
498B:							
Bursaw----------	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Too sandy	1.00	Seepage	1.00	Seepage	1.00
						Gravel content	1.00
						Depth to saturated zone	0.35
Beavertail----------	20	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
						Gravel content	0.96
505B:							
Graveraet----------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to thin cemented pan	0.50	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
505D:							
Graveraet	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to thin cemented pan	0.50	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.04	Slope	0.04	Slope	0.04
512A:							
Growton	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
514B:							
Kalkaska, burned	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
514D:							
Kalkaska, burned	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
514E:							
Kalkaska, burned	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
515B:							
Vilas	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
516A:							
Deford, drained	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86
Meehan, drained	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.11
517B:							
Mancelona	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
						Gravel content	0.05

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
517D:							
Mancelona	100	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
						Gravel content	0.05
518A:							
Deford, frequently flooded	40	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	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00				
Seney, frequently flooded	40	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	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00				
519B:							
Trenary	85	Not limited		Not limited		Not limited	
520B:							
Rubicon	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Sultz	40	Very limited		Very limited		Very limited	
		Too sandy	1.00	Seepage	1.00	Too sandy	1.00
						Seepage	1.00
520D:							
Rubicon	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
Sultz	40	Very limited		Very limited		Very limited	
		Too sandy	1.00	Seepage	1.00	Too sandy	1.00
		Slope	0.37	Slope	0.37	Seepage	1.00
						Slope	0.37
525B:							
Neconish	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
525B:							
Kinross----------	30	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
Wainola----------	25	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	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Too sandy	0.50
526B:							
Graveraet----------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to thin cemented pan	0.50	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Angelica----------	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
527B:							
Islandlake----------	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
McMillan----------	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
527D:							
Islandlake----------	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.16	Seepage	1.00
		Slope	0.16			Slope	0.16
McMillan----------	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.16	Seepage	1.00
		Slope	0.16			Slope	0.16
527E:							
Islandlake----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
McMillan----------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
531B:							
Greylock----------	90	Not limited		Not limited		Not limited	

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
531D:							
Greylock----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Slope	0.37
532:							
Angelica----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
534:							
Pickford----------	100	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
535B:							
Trenary----------	90	Not limited		Not limited		Not limited	
535D:							
Trenary----------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Slope	0.37
536B:							
Menominee, sandy substratum---------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
537B:							
McMillan----------	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
537D:							
McMillan----------	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
538B:							
Menominee, sandy substratum---------	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
McMillan----------	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
540D:							
Deford----------	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
540D:							
Rubicon----------	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
Au Gres----------	20	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
541D:							
Kinross----------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
Au Gres----------	25	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	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Rubicon----------	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
543B:							
Auger, sandy substratum---------	85	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.47
		Seepage	1.00				
546B:							
Kalkaska, deep water table----------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00				
546D:							
Kalkaska, deep water table----------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00	Slope	0.37	Slope	0.37
		Slope	0.37				

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
547B:							
Rubicon, very deep water table--------	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
547D:							
Rubicon, very deep water table--------	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
548B:							
McMillan----------	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Trenary----------	35	Not limited		Not limited		Not limited	
549B:							
Islandlake----------	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
549D:							
Islandlake----------	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.16	Seepage	1.00
		Slope	0.16			Slope	0.16
549E:							
Islandlake----------	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
551B:							
Kalkaska, very deep water table--------	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
551D:							
Kalkaska, very deep water table--------	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
553:							
Carbondale----------	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Seepage	1.00	Organic matter content	1.00
		Seepage	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00			Seepage	0.21

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
553:							
Loxley----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00	Seepage	1.00	Organic matter content	1.00
		Seepage	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00			Seepage	0.15
554B:							
Duck----------	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86
Halfaday----------	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.86
555D:							
Hiawatha----------	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00				
Deer Park----------	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Rubicon----------	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
557B:							
Kalkaska, very deep water table, burned	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
557D:							
Kalkaska, very deep water table, burned	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37			Slope	0.37
558B:							
Islandlake, burned--	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
558D:							
Islandlake, burned--	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Slope	0.16	Seepage	1.00
		Slope	0.16			Slope	0.16
559B:							
Kalkaska, deep water table, burned-----	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
560B:							
Islandlake, very deep water table---	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
561A:							
Croswell----------	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
						Seepage	1.00
		Seepage	1.00	Seepage	1.00	Depth to saturated zone	0.86
		Too sandy	1.00				
562B:							
Croswell----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
						Seepage	1.00
		Seepage	1.00	Seepage	1.00	Depth to saturated zone	0.86
		Too sandy	1.00				
Kinross----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
563B:							
Halfaday----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
						Seepage	1.00
		Seepage	1.00	Seepage	1.00	Depth to saturated zone	0.86
		Too sandy	1.00				
Kinross----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00			Ponding	1.00
564A:							
Ingalls----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Seepage	1.00		

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
565B:							
Rubicon, deep water table	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
						Seepage	1.00
		Seepage	1.00	Seepage	1.00		
		Too sandy	1.00				
565D:							
Rubicon, deep water table	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
						Seepage	1.00
		Seepage	1.00	Seepage	1.00	Slope	0.37
		Too sandy	1.00	Slope	0.37		
		Slope	0.37				
W:							
Water	100	Not rated		Not rated		Not rated	

Table 13a.--Construction Materials

(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 greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
10B:					
Amadon	75	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	25	Not rated		Not rated	
11B:					
Kalkaska	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
12B:					
Rubicon	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
12D:					
Rubicon	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
12E:					
Rubicon	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
12F:					
Rubicon	100	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
13B:					
Kalkaska	94	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
13D:					
Kalkaska	96	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
13E:					
Kalkaska	100	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
13F:					
Kalkaska	100	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
16A:					
Paquin	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.95
17A:					
Au Gres	92	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
18:					
Kinross	92	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.37
		Thickest layer	0.00	Bottom layer	0.95
19A:					
Au Gres	45	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
Deford	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
20E:					
Rousseau	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.25
		Thickest layer	0.00	Bottom layer	0.64
Neconish	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.23
		Thickest layer	0.00	Thickest layer	0.23
Finch	20	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.43
21B:					
Garlic	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.91
		Thickest layer	0.00	Thickest layer	0.91
21D:					
Garlic	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.91
		Thickest layer	0.00	Thickest layer	0.91
21E:					
Garlic	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.91
		Thickest layer	0.00	Thickest layer	0.91
22E:					
Rousseau	45	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.25
		Thickest layer	0.00	Bottom layer	0.64

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
22E:					
Neconish	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.23
		Thickest layer	0.00	Thickest layer	0.23
Deford	20	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
24B:					
Rousseau	100	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.25
		Thickest layer	0.00	Bottom layer	0.64
24D:					
Rousseau	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.25
		Thickest layer	0.00	Bottom layer	0.64
24E:					
Rousseau	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.25
		Thickest layer	0.00	Bottom layer	0.64
25B:					
Proper	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
26A:					
Spot	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.64
Finch	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.43
27A:					
Hendrie	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Annanias	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
30:					
Hendrie	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
33:					
Pits, sand and gravel	100	Not rated		Not rated	
34B:					
Liminga	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.45
		Thickest layer	0.00	Thickest layer	0.45

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
34E:					
Liminga	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.45
		Thickest layer	0.00	Thickest layer	0.45
36:					
Carbondale	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Lupton	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Tawas	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.91
37:					
Dawson	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
Greenwood	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Loxley	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
43:					
Ensley	90	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.64	Thickest layer	0.00
56B:					
Shuberts	30	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.27
		Bottom layer	0.00	Bottom layer	0.95
Wurtsmith	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.91
		Thickest layer	0.00	Thickest layer	0.91
Meehan	20	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
61A:					
Ingalls	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.05
Caffey	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
62B:					
McMillan----------	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.58
Greylock----------	35	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.02
		Bottom layer	0.00	Bottom layer	0.03
62D:					
McMillan----------	45	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.58
Greylock----------	35	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.02
		Bottom layer	0.00	Bottom layer	0.03
62E:					
Greylock----------	55	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.02
		Bottom layer	0.00	Bottom layer	0.03
McMillan----------	35	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.58
63:					
Deford----------	92	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
65:					
Ausable, frequently flooded----------	30	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.19
		Thickest layer	0.00	Thickest layer	0.19
Deford, frequently flooded----------	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
Tawas, frequently flooded----------	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.91
66:					
Markey----------	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.86
67B:					
Pelkie, occasionally flooded----------	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.86

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
67B:					
Deford, frequently flooded	25	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
68F:					
Deer Park	98	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.91
		Thickest layer	0.00	Thickest layer	0.91
69:					
Ruse	85	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
70F:					
Deer Park	60	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.91
		Thickest layer	0.00	Thickest layer	0.91
Deford	20	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
Tawas	15	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.91
72:					
Spot	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.64
73B:					
Graveraet	40	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
Gulliver	35	Fair		Poor	
		Bottom layer	0.15	Bottom layer	0.00
		Thickest layer	0.15	Thickest layer	0.00
76A:					
Shuberts	55	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.27
		Bottom layer	0.00	Bottom layer	0.95
Manistique	40	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.01
		Bottom layer	0.00	Bottom layer	0.70
78B:					
Heinz	100	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.37
		Bottom layer	0.75	Bottom layer	0.77

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
80F:					
Deer Park----------	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.91
		Thickest layer	0.00	Thickest layer	0.91
Dawson----------	20	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
Wainola----------	15	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.43
84:					
Dawson----------	65	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
Kinross----------	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.37
		Thickest layer	0.00	Bottom layer	0.95
86B:					
Wurtsmith----------	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.91
		Thickest layer	0.00	Thickest layer	0.91
Tawas----------	25	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.91
Deford----------	15	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
87B:					
Longrie----------	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Amadon----------	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
87D:					
Amadon----------	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Longrie----------	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
87E:					
Amadon----------	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
87E:					
Longrie	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	15	Not rated		Not rated	
88B:					
Cookson	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Amadon	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
89B:					
Cookson	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Trenary	30	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
90:					
Chippeny	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
91:					
Cathro	45	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.15	Thickest layer	0.00
Lupton	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
93A:					
Ruse	50	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
Ensign	40	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.01
98B:					
Guardlake	90	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.01
		Bottom layer	0.43	Bottom layer	0.43
98D:					
Guardlake	95	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.01
		Bottom layer	0.43	Bottom layer	0.43

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
98E:					
Guardlake	100	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.01
		Bottom layer	0.43	Bottom layer	0.43
116F:					
Udipsamments	50	Not rated		Not rated	
Udorthents	50	Not rated		Not rated	
119:					
Landfill	100	Not rated		Not rated	
120A:					
Charlevoix	55	Fair		Poor	
		Thickest layer	0.15	Bottom layer	0.00
		Bottom layer	0.21	Thickest layer	0.00
Ensley	30	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.64	Thickest layer	0.00
122A:					
Wormet	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.91
		Thickest layer	0.00	Thickest layer	0.91
123:					
Minocqua	80	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.91
125B:					
Stutts	65	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.01
		Thickest layer	0.00	Bottom layer	0.91
Kalkaska	35	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.82
		Thickest layer	0.00	Bottom layer	0.82
125D:					
Stutts	65	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.01
		Thickest layer	0.00	Bottom layer	0.91
Kalkaska	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
125E:					
Stutts	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.01
		Thickest layer	0.00	Bottom layer	0.91
Kalkaska	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
131B:					
Furlong	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.86
Shingleton	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.07
141A:					
Halfaday	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
145B:					
Noseum	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.91
155B:					
Karlin	100	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.91
		Thickest layer	0.00	Thickest layer	0.91
160B:					
Paquin	55	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.95
Finch	45	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.43
218:					
Pits, quarry	100	Not rated		Not rated	
219B:					
Cublake	100	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.64
222:					
Histosols	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Aquents	50	Not rated		Not rated	
225B:					
Cusino	95	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.79
		Bottom layer	0.00	Bottom layer	0.86
248B:					
Escanaba	50	Fair		Fair	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.60	Thickest layer	0.03

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
248B:					
Greylock	40	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.02
		Bottom layer	0.00	Bottom layer	0.03
249A:					
Iosco	95	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.08
267A:					
Finch	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.43
287B:					
Hiawatha	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.01
		Thickest layer	0.00	Bottom layer	0.23
289B:					
Wallace	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.93
289D:					
Wallace	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.93
289E:					
Wallace	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.93
294B:					
Munising, calcareous substratum	40	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.15	Thickest layer	0.00
Yalmer, calcareous substratum	30	Fair		Fair	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.69	Thickest layer	0.01
Frohling, calcareous substratum	20	Fair		Fair	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.60	Thickest layer	0.05
295E:					
Dillingham	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.68
Kalkaska	40	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
355B:					
Springlake----------	90	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.79
		Bottom layer	0.60	Bottom layer	0.91
366B:					
Gilchrist----------	90	Fair		Fair	
		Thickest layer	0.00	Bottom layer	0.02
		Bottom layer	0.15	Thickest layer	0.19
367B:					
Cozy----------	90	Fair		Not rated	
		Thickest layer	0.00	Bottom layer	0.02
		Bottom layer	0.79		
400B:					
Amadon----------	75	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
Rock outcrop--------	25	Not rated		Not rated	
401A:					
Ingalls----------	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.72
490B:					
Pelkie, occasionally flooded----------	65	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.86
Arnheim, frequently flooded----------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
491B:					
Neconish----------	45	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.23
		Thickest layer	0.00	Thickest layer	0.23
Deford, rarely flooded----------	25	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
Wainola----------	15	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.43
492D:					
Wurtsmith----------	45	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.91
		Thickest layer	0.00	Thickest layer	0.91

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
492D:					
Duck----------	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.13
		Thickest layer	0.00	Bottom layer	0.64
Rubicon----------	15	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
493A:					
Deford----------	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
Meehan----------	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
Seney----------	20	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.09
		Thickest layer	0.00	Bottom layer	0.64
498B:					
Bursaw----------	55	Fair		Fair	
		Bottom layer	0.00	Bottom layer	0.04
		Thickest layer	0.83	Thickest layer	0.84
Beavertail----------	20	Fair		Fair	
		Bottom layer	0.79	Bottom layer	0.02
		Thickest layer	0.79	Thickest layer	0.02
505B:					
Graveraet----------	90	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
505D:					
Graveraet----------	95	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
512A:					
Growton----------	90	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.64	Thickest layer	0.00
514B:					
Kalkaska, burned----	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
514D:					
Kalkaska, burned----	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
514E:					
Kalkaska, burned----	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
515B:					
Vilas	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.82
		Thickest layer	0.00	Bottom layer	0.95
516A:					
Deford, drained	65	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
Meehan, drained	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
517B:					
Mancelona	90	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.08
		Bottom layer	0.71	Bottom layer	0.80
517D:					
Mancelona	100	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.08
		Bottom layer	0.71	Bottom layer	0.80
518A:					
Deford, frequently flooded	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
Seney, frequently flooded	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.09
		Thickest layer	0.00	Bottom layer	0.64
519B:					
Trenary	85	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
520B:					
Rubicon	55	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
Sultz	40	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.25
520D:					
Rubicon	55	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
Sultz	40	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.25

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
525B:					
Neconish	35	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.23
		Thickest layer	0.00	Thickest layer	0.23
Kinross	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.37
		Thickest layer	0.00	Bottom layer	0.95
Wainola	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.43
526B:					
Graveraet	45	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
Angelica	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
527B:					
Islandlake	55	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.79
McMillan	45	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.58
527D:					
Islandlake	55	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.79
McMillan	35	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.58
527E:					
Islandlake	55	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.79
McMillan	35	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.58
531B:					
Greylock	90	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.02
		Bottom layer	0.00	Bottom layer	0.03
531D:					
Greylock	85	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.02
		Bottom layer	0.00	Bottom layer	0.03

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
532:					
Angelica----------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
534:					
Pickford----------	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
535B:					
Trenary----------	90	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
535D:					
Trenary----------	90	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
536B:					
Menominee, sandy substratum---------	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.40
		Thickest layer	0.00	Bottom layer	0.64
537B:					
McMillan----------	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.58
537D:					
McMillan----------	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.58
538B:					
Menominee, sandy substratum---------	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.40
		Thickest layer	0.00	Bottom layer	0.64
McMillan----------	30	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.58
540D:					
Deford----------	35	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.25
Rubicon----------	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
Au Gres----------	20	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
541D:					
Kinross----------	45	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.37
		Thickest layer	0.00	Bottom layer	0.95
Au Gres----------	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
Rubicon----------	15	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
543B:					
Auger, sandy substratum---------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
546B:					
Kalkaska, deep water table----------	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
546D:					
Kalkaska, deep water table----------	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
547B:					
Rubicon, very deep water table--------	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
547D:					
Rubicon, very deep water table--------	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
548B:					
McMillan----------	55	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.58
Trenary----------	35	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
549B:					
Islandlake----------	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.79

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
549D:					
Islandlake----------	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.79
549E:					
Islandlake----------	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.79
551B:					
Kalkaska, very deep water table--------	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
551D:					
Kalkaska, very deep water table--------	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
553:					
Carbondale----------	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Loxley----------	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
554B:					
Duck----------	70	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.13
		Thickest layer	0.00	Bottom layer	0.64
Halfaday----------	20	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
555D:					
Hiawatha----------	35	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.01
		Thickest layer	0.00	Bottom layer	0.23
Deer Park----------	35	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.91
		Thickest layer	0.00	Thickest layer	0.91
Rubicon----------	20	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
557B:					
Kalkaska, very deep water table, burned	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
557D:					
Kalkaska, very deep water table, burned	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
558B:					
Islandlake, burned--	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.79
558D:					
Islandlake, burned--	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.79
559B:					
Kalkaska, deep water table, burned-----	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
560B:					
Islandlake, very deep water table---	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.79
561A:					
Croswell----------	92	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
562B:					
Croswell----------	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
Kinross----------	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.37
		Thickest layer	0.00	Bottom layer	0.95
563B:					
Halfaday----------	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
Kinross----------	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.37
		Thickest layer	0.00	Bottom layer	0.95
564A:					
Ingalls----------	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.05

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
565B:					
Rubicon, deep water table	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
565D:					
Rubicon, deep water table	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
W:					
Water	100	Not rated		Not rated	

Table 13b.--Construction Materials

(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. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10B:							
Amadon----------	75	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Too acid	0.76
		Too acid	0.50				
Rock outcrop--------	25	Not rated		Not rated		Not rated	
11B:							
Kalkaska----------	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.50
		Organic matter content	0.12				
		Droughty	0.44				
		Too acid	0.50				
12B:							
Rubicon----------	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				
12D:							
Rubicon----------	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				
12E:							
Rubicon----------	95	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				
12F:							
Rubicon----------	100	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
13B:							
Kalkaska	94	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				
13D:							
Kalkaska	96	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				
13E:							
Kalkaska	100	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				
13F:							
Kalkaska	100	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				
16A:							
Paquin	90	Poor		Poor		Poor	
		Too sandy	0.00	Depth to cemented pan	0.00	Too sandy	0.00
		Wind erosion	0.00			Depth to cemented pan	0.00
		Droughty	0.00	Wetness	0.53		
		Depth to cemented pan	0.00			Wetness	0.53
						Too acid	0.92
		Too acid	0.50				
17A:							
Au Gres	92	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.76
		Too acid	0.50				
		Droughty	0.83				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
18:							
Kinross	92	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.99				
19A:							
Au Gres	45	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.76
		Too acid	0.50				
		Droughty	0.83				
Deford	40	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.99
		Too acid	0.50				
20E:							
Rousseau	40	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.00
		Organic matter content	0.12			Too acid	0.98
		Too acid	0.54				
		Droughty	0.80				
Neconish	25	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12			Too acid	0.76
		Too acid	0.50				
		Droughty	0.86				
Finch	20	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00	Depth to cemented pan	0.00	Wetness	0.00
		Droughty	0.00			Depth to cemented pan	0.00
		Depth to cemented pan	0.00			Too acid	0.88
		Too acid	0.08				
21B:							
Garlic	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.97				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
21D:							
Garlic	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.97				
21E:							
Garlic	90	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.97				
22E:							
Rousseau	45	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.00
		Organic matter content	0.12			Too acid	0.98
		Too acid	0.54				
		Droughty	0.80				
Neconish	25	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12			Too acid	0.76
		Too acid	0.50				
		Droughty	0.86				
Deford	20	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.99
		Too acid	0.50				
24B:							
Rousseau	100	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.98
		Organic matter content	0.12				
		Too acid	0.54				
		Droughty	0.80				
24D:							
Rousseau	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.12			Too acid	0.98
		Too acid	0.54				
		Droughty	0.80				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
24E:							
Rousseau	90	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.98
		Too acid	0.54				
		Droughty	0.80				
25B:							
Proper	85	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12			Too acid	0.99
		Too acid	0.50				
		Droughty	0.75				
26A:							
Spot	50	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Droughty	0.00	Depth to cemented pan	0.00	Wetness	0.00
		Depth to cemented pan	0.00			Depth to cemented pan	0.00
		Too acid	0.50			Too acid	0.68
		Organic matter content	0.88				
Finch	40	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00	Depth to cemented pan	0.00	Wetness	0.00
		Droughty	0.00			Depth to cemented pan	0.00
		Depth to cemented pan	0.00			Too acid	0.88
		Too acid	0.08				
27A:							
Hendrie	50	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too acid	0.50				
Annanias	30	Fair		Poor		Poor	
		Too acid	0.01	Wetness	0.00	Wetness	0.00
		Organic matter content	0.12			Too acid	0.88
30:							
Hendrie	85	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too acid	0.50				
33:							
Pits, sand and gravel	100	Not rated		Not rated		Not rated	

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
34B:							
Liminga	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.12
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.85				
34E:							
Liminga	95	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.12
		Too acid	0.50				
		Droughty	0.85				
36:							
Carbondale	30	Fair		Poor		Poor	
		Too acid	0.99	Wetness	0.00	Wetness	0.00
						Organic matter content	0.00
Lupton	30	Not rated		Poor		Poor	
				Wetness	0.00	Wetness	0.00
						Organic matter content	0.00
Tawas	30	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too acid	0.50			Organic matter content	0.00
						Too acid	0.92
37:							
Dawson	30	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too acid	0.50			Organic matter content	0.00
						Too acid	0.00
Greenwood	30	Fair		Poor		Poor	
		Too acid	0.03	Wetness	0.00	Wetness	0.00
						Organic matter content	0.00
						Too acid	0.32
Loxley	30	Fair		Poor		Poor	
		Too acid	0.50	Wetness	0.00	Wetness	0.00
						Organic matter content	0.00
						Too acid	0.41

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
43:							
Ensley	90	Poor		Poor		Poor	
		Wind erosion	0.00	Wetness	0.00	Hard to reclaim (dense layer)	0.00
		Organic matter content	0.12			Wetness	0.00
						Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.92
56B:							
Shuberts	30	Poor		Poor		Poor	
		Wind erosion	0.00	Depth to bedrock	0.00	Wetness	0.00
		Droughty	0.00	Wetness	0.00	Too sandy	0.00
		Too sandy	0.00			Depth to bedrock	0.16
		Organic matter content	0.10				
		Depth to bedrock	0.16				
		Too acid	0.68				
Wurtsmith	25	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.86				
Meehan	20	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.92
		Too acid	0.50				
		Droughty	0.66				
61A:							
Ingalls	50	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Too acid	0.01			Too acid	0.98
		Organic matter content	0.12				
Caffey	30	Poor		Poor		Poor	
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Organic matter content	0.12				
		Too acid	0.68				
		Carbonate content	0.92				
62B:							
McMillan	50	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.59
		Too acid	0.50				
		Droughty	0.58				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
62B:							
Greylock	35	Fair		Good		Good	
		Organic matter content	0.12				
		Too acid	0.50				
		Carbonate content	0.92				
62D:							
McMillan	45	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.59
		Too acid	0.50			Slope	0.84
		Droughty	0.58				
Greylock	35	Fair		Good		Fair	
		Organic matter content	0.12			Slope	0.84
		Too acid	0.50				
		Carbonate content	0.92				
62E:							
Greylock	55	Fair		Poor		Poor	
		Organic matter content	0.12	Slope	0.00	Slope	0.00
		Too acid	0.50				
		Carbonate content	0.92				
McMillan	35	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Organic matter content	0.12			Too sandy	0.00
		Too acid	0.50			Too acid	0.59
		Droughty	0.58				
63:							
Deford	92	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.99
		Too acid	0.50				
65:							
Ausable, frequently flooded	30	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Too acid	0.97			Wetness	0.00
Deford, frequently flooded	30	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Organic matter content	0.12			Wetness	0.00
		Too acid	0.50			Too acid	0.99

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
65:							
Tawas, frequently flooded	30	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too acid	0.50			Organic matter content	0.00
						Too acid	0.92
66:							
Markey	95	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12				
		Too acid	0.50				
67B:							
Pelkie, occasionally flooded	50	Poor		Fair		Fair	
		Wind erosion	0.00	Wetness	0.53	Too sandy	0.36
		Too sandy	0.36			Wetness	0.53
		Too acid	0.68				
		Organic matter content	0.88				
Deford, frequently flooded	25	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Organic matter content	0.12			Wetness	0.00
		Too acid	0.50			Too acid	0.99
68F:							
Deer Park	98	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.88
		Too acid	0.50				
		Droughty	0.79				
69:							
Ruse	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Wetness	0.00
		Depth to bedrock	0.00	Wetness	0.00	Depth to bedrock	0.00
		Carbonate content	0.92			Organic matter content	0.78
						Rock fragments	0.97
70F:							
Deer Park	60	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.88
		Too acid	0.50				
		Droughty	0.79				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
70F:							
Deford	20	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.99
		Too acid	0.50				
Tawas	15	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too acid	0.50			Organic matter content	0.00
						Too acid	0.92
72:							
Spot	85	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Droughty	0.00	Depth to cemented pan	0.00	Wetness	0.00
		Depth to cemented pan	0.00			Depth to cemented pan	0.00
		Too acid	0.50			Too acid	0.68
		Organic matter content	0.88				
73B:							
Graveraet	40	Poor		Poor		Poor	
		Droughty	0.00	Wetness	0.00	Hard to reclaim (dense layer)	0.00
		Depth to cemented pan	0.00	Depth to cemented pan	0.00	Wetness	0.00
		Too acid	0.16			Depth to cemented pan	0.00
		Carbonate content	0.92			Too acid	0.99
Gulliver	35	Fair		Fair		Fair	
		Organic matter content	0.18	Wetness	0.14	Wetness	0.14
		Too acid	0.50	Depth to bedrock	0.99	Rock fragments	0.50
		Carbonate content	0.88				
		Water erosion	0.90				
76A:							
Shuberts	55	Poor		Poor		Poor	
		Wind erosion	0.00	Depth to bedrock	0.00	Wetness	0.00
		Droughty	0.00	Wetness	0.00	Too sandy	0.00
		Too sandy	0.00			Depth to bedrock	0.16
		Organic matter content	0.10				
		Depth to bedrock	0.16				
		Too acid	0.68				
Manistique	40	Poor		Poor		Poor	
		Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Droughty	0.00			Depth to bedrock	0.35
		Depth to bedrock	0.35				
		Too acid	0.50				
		Organic matter content	0.70				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
78B:							
Heinz	100	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Organic matter content	0.12			Hard to reclaim (rock fragments)	0.00
		Droughty	0.24			Rock fragments	0.12
		Too acid	0.50			Wetness	0.53
		Carbonate content	0.97				
80F:							
Deer Park	50	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.88
		Too acid	0.50				
		Droughty	0.79				
Dawson	20	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too acid	0.50			Organic matter content	0.00
						Too acid	0.00
Wainola	15	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.98
		Too acid	0.54				
		Droughty	0.87				
84:							
Dawson	65	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too acid	0.50			Organic matter content	0.00
						Too acid	0.00
Kinross	30	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.99				
86B:							
Wurtsmith	50	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.86				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
86B:							
Tawas	25	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too acid	0.50			Organic matter content	0.00
						Too acid	0.92
Deford	15	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.99
		Too acid	0.50				
87B:							
Longrie	60	Fair		Poor		Fair	
		Too acid	0.50	Depth to bedrock	0.00	Too acid	0.92
		Depth to bedrock	0.93			Depth to bedrock	0.93
Amadon	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Too acid	0.76
		Too acid	0.50				
		Water erosion	0.90				
87D:							
Amadon	45	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Slope	0.63
		Too acid	0.50			Too acid	0.76
		Water erosion	0.90				
Longrie	45	Fair		Poor		Fair	
		Too acid	0.50	Depth to bedrock	0.00	Slope	0.63
		Depth to bedrock	0.93			Too acid	0.92
						Depth to bedrock	0.93
87E:							
Amadon	65	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Depth to bedrock	0.00
		Too acid	0.50			Too acid	0.76
		Water erosion	0.90				
Longrie	20	Fair		Poor		Poor	
		Too acid	0.50	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.93	Slope	0.00	Too acid	0.92
						Depth to bedrock	0.93
Rock outcrop	15	Not rated		Not rated		Not rated	
88B:							
Cookson	55	Fair		Poor		Fair	
		Too acid	0.50	Depth to bedrock	0.00	Depth to bedrock	0.93
		Organic matter content	0.68				
		Depth to bedrock	0.93				
		Droughty	0.99				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
88B:							
Amadon	45	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Too acid	0.76
		Too acid	0.50				
		Water erosion	0.90				
89B:							
Cookson	65	Fair		Poor		Fair	
		Too acid	0.50	Depth to bedrock	0.00	Depth to bedrock	0.93
		Organic matter content	0.68				
		Depth to bedrock	0.93				
		Droughty	0.99				
Trenary	30	Fair		Good		Good	
		Organic matter content	0.12				
		Too acid	0.50				
90:							
Chippeny	100	Poor		Poor		Poor	
		Wind erosion	0.00	Depth to bedrock	0.00	Wetness	0.00
		Depth to bedrock	0.35	Wetness	0.00	Organic matter content	0.00
		Water erosion	0.90				
		Carbonate content	0.92			Depth to bedrock	0.35
91:							
Cathro	45	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too acid	0.84			Organic matter content	0.00
		Carbonate content	0.92			Hard to reclaim (rock fragments)	0.99
Lupton	45	Not rated		Poor		Poor	
				Wetness	0.00	Wetness	0.00
						Organic matter content	0.00
93A:							
Ruse	50	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Wetness	0.00
		Depth to bedrock	0.00	Wetness	0.00	Depth to bedrock	0.00
		Carbonate content	0.92			Organic matter content	0.78
						Rock fragments	0.97
Ensign	40	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Wetness	0.00
		Droughty	0.00	Wetness	0.00	Depth to bedrock	0.00
		Organic matter content	0.88				
		Too acid	0.99				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
98B:							
Guardlake	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Organic matter content	0.12			Rock fragments	0.00
		Droughty	0.63			Hard to reclaim (rock fragments)	0.12
		Too acid	0.68				
98D:							
Guardlake	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Organic matter content	0.12			Rock fragments	0.00
		Droughty	0.63			Hard to reclaim (rock fragments)	0.12
		Too acid	0.68			Slope	0.84
98E:							
Guardlake	100	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Organic matter content	0.12			Too sandy	0.00
		Droughty	0.63			Rock fragments	0.00
		Too acid	0.68			Hard to reclaim (rock fragments)	0.12
116F:							
Udipsamments	50	Not rated		Not rated		Not rated	
Udorthents	50	Not rated		Not rated		Not rated	
119:							
Landfill	100	Not rated		Not rated		Not rated	
120A:							
Charlevoix	55	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Hard to reclaim (dense layer)	0.00
		Too acid	0.50			Wetness	0.00
		Carbonate content	0.92			Rock fragments	0.24
						Hard to reclaim (rock fragments)	0.82
Ensley	30	Poor		Poor		Poor	
		Wind erosion	0.00	Wetness	0.00	Hard to reclaim (dense layer)	0.00
		Organic matter content	0.12			Wetness	0.00
						Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.92
122A:							
Wormet	85	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Organic matter content	0.12			Wetness	0.00
		Too acid	0.50				
		Droughty	0.99				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
123:							
Minocqua	80	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Organic matter content	0.12			Wetness	0.00
		Too acid	0.50			Too acid	0.95
125B:							
Stutts	65	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
		Too acid	0.50				
Kalkaska	35	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.50
		Organic matter content	0.12				
		Droughty	0.44				
		Too acid	0.50				
125D:							
Stutts	65	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.12				
		Too acid	0.50				
Kalkaska	25	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.50
		Organic matter content	0.12			Slope	0.63
		Droughty	0.44				
		Too acid	0.50				
125E:							
Stutts	50	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.12				
		Too acid	0.50				
Kalkaska	50	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.50
		Droughty	0.44				
		Too acid	0.50				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
131B:							
Furlong	50	Poor		Poor		Poor	
		Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
		Wind erosion	0.00			Depth to bedrock	0.03
		Droughty	0.00			Too acid	0.68
		Depth to bedrock	0.03				
		Too acid	0.50				
Shingleton	40	Poor		Poor		Poor	
		Wind erosion	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Droughty	0.00			Too sandy	0.38
		Depth to bedrock	0.00			Too acid	0.59
		Too sandy	0.38				
		Too acid	0.50				
141A:							
Halfaday	90	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12			Too acid	0.76
		Too acid	0.50				
		Droughty	0.63				
145B:							
Noseum	85	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Organic matter content	0.12			Wetness	0.53
		Too acid	0.50			Too acid	0.76
155B:							
Karlin	100	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.95
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.98				
160B:							
Paquin	55	Poor		Poor		Poor	
		Too sandy	0.00	Depth to cemented pan	0.00	Too sandy	0.00
		Wind erosion	0.00	Wetness	0.53	Depth to cemented pan	0.00
		Droughty	0.00			Wetness	0.53
		Depth to cemented pan	0.00			Too acid	0.92
		Too acid	0.50				
Finch	45	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00	Depth to cemented pan	0.00	Wetness	0.00
		Droughty	0.00			Depth to cemented pan	0.00
		Depth to cemented pan	0.00			Too acid	0.88
		Too acid	0.08				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
218:							
Pits, quarry	100	Not rated		Not rated		Not rated	
219B:							
Cublake	100	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12			Too acid	0.95
		Too acid	0.32				
222:							
Histosols	50	Not rated		Poor		Poor	
				Wetness	0.00	Wetness	0.00
						Organic matter content	0.00
Aquents	50	Poor		Poor		Poor	
		Organic matter content	0.00	Wetness	0.00	Wetness	0.00
225B:							
Cusino	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Rock fragments	0.88
		Organic matter content	0.12			Too acid	0.98
		Droughty	0.24				
		Too acid	0.50				
248B:							
Escanaba	50	Poor		Good		Fair	
		Wind erosion	0.00			Too sandy	0.14
		Organic matter content	0.12			Hard to reclaim (rock fragments)	0.88
		Too sandy	0.14				
		Too acid	0.61				
		Carbonate content	0.92				
Greylock	40	Fair		Good		Good	
		Organic matter content	0.12				
		Too acid	0.50				
		Carbonate content	0.92				
249A:							
Iosco	95	Poor		Poor		Poor	
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Organic matter content	0.12			Too sandy	0.20
						Rock fragments	0.97
		Too sandy	0.20				
		Too acid	0.50				
		Carbonate content	0.80				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
267A:							
Finch	85	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00	Depth to cemented pan	0.00	Wetness	0.00
		Droughty	0.00			Depth to cemented pan	0.00
		Depth to cemented pan	0.00			Too acid	0.88
		Too acid	0.08				
287B:							
Hiawatha	85	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.82
		Organic matter content	0.01				
		Too acid	0.50				
		Droughty	0.65				
289B:							
Wallace	85	Poor		Poor		Poor	
		Too sandy	0.00	Depth to cemented pan	0.00	Too sandy	0.00
		Wind erosion	0.00			Depth to cemented pan	0.00
		Droughty	0.00			Too acid	0.50
		Depth to cemented pan	0.00				
		Too acid	0.08				
289D:							
Wallace	90	Poor		Poor		Poor	
		Too sandy	0.00	Depth to cemented pan	0.00	Too sandy	0.00
		Wind erosion	0.00			Depth to cemented pan	0.00
		Droughty	0.00			Too acid	0.50
		Depth to cemented pan	0.00			Slope	0.63
		Too acid	0.08				
289E:							
Wallace	95	Poor		Poor		Poor	
		Too sandy	0.00	Depth to cemented pan	0.00	Slope	0.00
		Wind erosion	0.00	Slope	0.00	Too sandy	0.00
		Droughty	0.00			Depth to cemented pan	0.00
		Depth to cemented pan	0.00			Too acid	0.50
		Too acid	0.08				
294B:							
Munising, calcareous substratum	40	Poor		Poor		Poor	
		Wind erosion	0.00	Wetness	0.00	Hard to reclaim (dense layer)	0.00
		Too acid	0.00			Wetness	0.00
						Too acid	0.88
						Hard to reclaim (rock fragments)	0.95

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
294B:							
Yalmer, calcareous substratum---------	30	Poor		Poor		Poor	
		Wind erosion	0.00	Wetness	0.00	Hard to reclaim (dense layer)	0.00
		Too acid	0.00				
		Organic matter content	0.12			Wetness	0.00
						Rock fragments	0.00
		Too sandy	0.47			Too sandy	0.47
		Droughty	0.97				
Frohling, calcareous substratum---------	20	Fair		Good		Poor	
		Organic matter content	0.12			Hard to reclaim (dense layer)	0.00
		Too acid	0.20			Too acid	0.76
		Carbonate content	0.92				
295E:							
Dillingham----------	50	Poor		Poor		Poor	
		Wind erosion	0.00	Depth to cemented pan	0.00	Slope	0.00
		Droughty	0.00			Hard to reclaim (dense layer)	0.00
		Depth to cemented pan	0.01	Slope	0.00		
						Depth to cemented pan	0.01
		Too sandy	0.01			Too sandy	0.01
		Too acid	0.50			Too acid	0.82
Kalkaska----------	40	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				
355B:							
Springlake----------	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Rock fragments	0.12
		Droughty	0.08				
		Organic matter content	0.12				
		Too acid	0.50				
		Carbonate content	0.97				
366B:							
Gilchrist----------	90	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Hard to reclaim (dense layer)	0.00
		Wind erosion	0.00				
		Droughty	0.00			Too sandy	0.00
		Too acid	0.50			Wetness	0.00
		Organic matter content	0.88				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
367B:							
Cozy	90	Poor		Poor		Poor	
		Droughty	0.00	Wetness	0.00	Hard to reclaim (dense layer)	0.00
		Too acid	0.84			Wetness	0.00
		Carbonate content	0.92			Organic matter content	0.00
400B:							
Amadon	75	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Too acid	0.76
		Organic matter content	0.18				
		Too acid	0.50				
		Water erosion	0.90				
Rock outcrop	25	Not rated		Not rated		Not rated	
401A:							
Ingalls	90	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.76
		Too acid	0.50				
490B:							
Pelkie, occasionally flooded	65	Poor		Fair		Fair	
		Wind erosion	0.00	Wetness	0.53	Too sandy	0.36
		Organic matter content	0.12			Wetness	0.53
		Too sandy	0.36				
		Too acid	0.68				
Arnheim, frequently flooded	25	Fair		Poor		Poor	
		Too acid	0.74	Wetness	0.00	Wetness	0.00
		Water erosion	0.90				
491B:							
Neconish	45	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12			Too acid	0.76
		Too acid	0.50				
		Droughty	0.86				
Deford, rarely flooded	25	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Organic matter content	0.12			Wetness	0.00
		Too acid	0.50			Too acid	0.99

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
491B:							
Wainola----------	15	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.98
		Too acid	0.54				
		Droughty	0.87				
492D:							
Wurtsmith----------	45	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.86				
Duck----------	30	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Organic matter content	0.12			Wetness	0.53
		Too acid	0.50				
		Droughty	0.66				
Rubicon----------	15	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				
493A:							
Deford----------	40	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.99
		Too acid	0.50				
Meehan----------	25	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.92
		Too acid	0.50				
		Droughty	0.66				
Seney----------	20	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Organic matter content	0.12			Wetness	0.00
		Too acid	0.50			Too acid	0.92
		Droughty	0.92				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
498B:							
Bursaw	55	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.94	Too sandy	0.00
		Wind erosion	0.00			Hard to reclaim (rock fragments)	0.00
		Droughty	0.00			Rock fragments	0.00
		Organic matter content	0.12			Wetness	0.94
		Carbonate content	0.92			Carbonate content	0.97
Beavertail	20	Poor		Poor		Poor	
		Wind erosion	0.00	Wetness	0.00	Hard to reclaim (dense layer)	0.00
		Organic matter content	0.12			Wetness	0.00
		Droughty	0.55			Rock fragments	0.00
		Carbonate content	0.92			Hard to reclaim (rock fragments)	0.00
						Carbonate content	0.92
505B:							
Graveraet	90	Poor		Poor		Poor	
		Droughty	0.00	Wetness	0.00	Hard to reclaim (dense layer)	0.00
		Depth to cemented pan	0.00	Depth to cemented pan	0.00	Wetness	0.00
		Too acid	0.16			Depth to cemented pan	0.00
		Carbonate content	0.92			Too acid	0.99
505D:							
Graveraet	95	Poor		Poor		Poor	
		Droughty	0.00	Wetness	0.00	Hard to reclaim (dense layer)	0.00
		Depth to cemented pan	0.00	Depth to cemented pan	0.00	Wetness	0.00
		Too acid	0.16			Depth to cemented pan	0.00
		Carbonate content	0.92			Slope	0.96
						Too acid	0.99
512A:							
Growton	90	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Carbonate content	0.92			Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.92
514B:							
Kalkaska, burned	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
514D:							
Kalkaska, burned----	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				
514E:							
Kalkaska, burned----	95	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				
515B:							
Vilas----------	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
		Droughty	0.31				
		Too acid	0.50				
516A:							
Deford, drained-----	65	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12			Too acid	0.99
		Too acid	0.50				
Meehan, drained-----	25	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.92
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.66				
517B:							
Mancelona----------	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Rock fragments	0.00
		Organic matter content	0.12			Hard to reclaim (rock fragments)	0.18
		Droughty	0.24				
		Too acid	0.50				
		Carbonate content	0.97				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
517D:							
Mancelona	100	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Rock fragments	0.00
		Organic matter content	0.12			Hard to reclaim (rock fragments)	0.18
		Droughty	0.24			Slope	0.63
		Too acid	0.50				
		Carbonate content	0.97				
518A:							
Deford, frequently flooded	40	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Organic matter content	0.12			Wetness	0.00
		Too acid	0.50			Too acid	0.99
Seney, frequently flooded	40	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Organic matter content	0.12			Wetness	0.00
		Too acid	0.50			Too acid	0.92
		Droughty	0.92				
519B:							
Trenary	85	Fair		Good		Good	
		Organic matter content	0.12				
		Too acid	0.50				
520B:							
Rubicon	55	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				
Sultz	40	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
		Too acid	0.54				
520D:							
Rubicon	55	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
520D:							
Sultz----------	40	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.12				
		Too acid	0.54				
525B:							
Neconish----------	35	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12			Too acid	0.76
		Too acid	0.50				
		Droughty	0.86				
Kinross----------	30	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.99				
Wainola----------	25	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.98
		Too acid	0.54				
		Droughty	0.87				
526B:							
Graveraet----------	45	Poor		Poor		Poor	
		Droughty	0.00	Wetness	0.00	Hard to reclaim (dense layer)	0.00
		Depth to cemented pan	0.00	Depth to cemented pan	0.00	Wetness	0.00
		Too acid	0.16			Depth to cemented pan	0.00
		Carbonate content	0.92			Too acid	0.99
Angelica----------	35	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Carbonate content	0.92			Carbonate content	0.99
		Too acid	0.99				
527B:							
Islandlake----------	55	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.98
		Too acid	0.00				
		Droughty	0.92				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
527B:							
McMillan----------	45	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.59
		Too acid	0.50				
		Droughty	0.58				
527D:							
Islandlake----------	55	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.84
		Too acid	0.00			Too acid	0.98
		Droughty	0.92				
McMillan----------	35	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.59
		Too acid	0.50			Slope	0.84
		Droughty	0.58				
527E:							
Islandlake----------	55	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Too acid	0.00			Too acid	0.98
		Droughty	0.92				
McMillan----------	35	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Organic matter content	0.12			Too sandy	0.00
		Too acid	0.50			Too acid	0.59
		Droughty	0.58				
531B:							
Greylock----------	90	Fair		Good		Good	
		Organic matter content	0.12				
		Too acid	0.50				
		Carbonate content	0.92				
531D:							
Greylock----------	85	Fair		Good		Fair	
		Organic matter content	0.12			Slope	0.63
		Too acid	0.50				
		Carbonate content	0.92				
532:							
Angelica----------	85	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Carbonate content	0.92			Carbonate content	0.99
		Too acid	0.99				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
534:							
Pickford	100	Poor		Poor		Poor	
		Too clayey	0.00	Wetness	0.00	Too clayey	0.00
		Organic matter content	0.12	Shrink-swell	0.12	Wetness	0.00
		Water erosion	0.90				
		Carbonate content	0.92				
		Too acid	0.92				
535B:							
Trenary	90	Fair		Good		Good	
		Organic matter content	0.12				
		Too acid	0.50				
535D:							
Trenary	90	Fair		Good		Fair	
		Organic matter content	0.12			Slope	0.63
		Too acid	0.50				
536B:							
Menominee, sandy substratum	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.98
		Too acid	0.12				
		Carbonate content	0.92				
537B:							
McMillan	85	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.59
		Too acid	0.50				
		Droughty	0.58				
537D:							
McMillan	85	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.59
		Too acid	0.50			Slope	0.63
		Droughty	0.58				
538B:							
Menominee, sandy substratum	50	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.98
		Too acid	0.12				
		Carbonate content	0.92				
McMillan	30	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.59
		Too acid	0.50				
		Droughty	0.58				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
540D:							
Deford	35	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.99
		Too acid	0.50				
Rubicon	25	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				
Au Gres	20	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.76
		Too acid	0.50				
		Droughty	0.83				
541D:							
Kinross	45	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.99				
Au Gres	25	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12			Too acid	0.76
		Too acid	0.50				
		Droughty	0.83				
Rubicon	15	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				
543B:							
Auger, sandy substratum	85	Poor		Fair		Fair	
		Too acid	0.00	Wetness	0.89	Too acid	0.76
		Organic matter content	0.12			Wetness	0.89
		Water erosion	0.99				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
546B:							
Kalkaska, deep water table	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				
546D:							
Kalkaska, deep water table	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				
547B:							
Rubicon, very deep water table	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				
547D:							
Rubicon, very deep water table	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				
548B:							
McMillan	55	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Organic matter content	0.12			Too acid	0.59
		Too acid	0.50				
		Droughty	0.58				
Trenary	35	Fair		Good		Good	
		Organic matter content	0.12				
		Too acid	0.50				
549B:							
Islandlake	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.98
		Too acid	0.00				
		Droughty	0.92				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
549D:							
Islandlake----------	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.84
		Too acid	0.00			Too acid	0.98
		Droughty	0.92				
549E:							
Islandlake----------	95	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Too acid	0.00			Too acid	0.98
		Droughty	0.92				
551B:							
Kalkaska, very deep water table--------	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				
551D:							
Kalkaska, very deep water table--------	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				
553:							
Carbondale----------	60	Fair		Poor		Poor	
		Too acid	0.99	Wetness	0.00	Wetness	0.00
						Organic matter content	0.00
Loxley----------	40	Fair		Poor		Poor	
		Too acid	0.50	Wetness	0.00	Wetness	0.00
						Organic matter content	0.00
						Too acid	0.41
554B:							
Duck----------	70	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Organic matter content	0.12			Wetness	0.53
		Too acid	0.50				
		Droughty	0.66				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
554B:							
Halfaday----------	20	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12			Too acid	0.76
		Too acid	0.50				
		Droughty	0.63				
555D:							
Hiawatha----------	35	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.82
		Organic matter content	0.01				
		Too acid	0.50				
		Droughty	0.65				
Deer Park----------	35	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.88
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.79				
Rubicon----------	20	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				
557B:							
Kalkaska, very deep water table, burned	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				
557D:							
Kalkaska, very deep water table, burned	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
558B:							
Islandlake, burned--	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.98
		Too acid	0.00				
		Droughty	0.92				
558D:							
Islandlake, burned--	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.84
		Too acid	0.00			Too acid	0.98
		Droughty	0.92				
559B:							
Kalkaska, deep water table, burned-----	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.18				
		Too acid	0.50				
		Droughty	0.77				
560B:							
Islandlake, very deep water table---	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.98
		Too acid	0.00				
		Droughty	0.92				
561A:							
Croswell----------	92	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.72				
562B:							
Croswell----------	50	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.72				
Kinross----------	40	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.99				

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
563B:							
Halfaday	50	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter content	0.12			Too acid	0.76
		Too acid	0.50				
		Droughty	0.63				
Kinross	40	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Organic matter content	0.12				
		Too acid	0.50				
		Droughty	0.99				
564A:							
Ingalls	85	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.00
		Too acid	0.01			Too acid	0.98
		Organic matter content	0.12				
565B:							
Rubicon, deep water table	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				
565D:							
Rubicon, deep water table	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter content	0.12				
		Droughty	0.23				
		Too acid	0.50				
W:							
Water	100	Not rated		Not rated		Not rated	

Table 14a.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10B:							
Amadon	75	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Seepage	0.01	Piping	1.00		
Rock outcrop	25	Not rated		Not rated		Not rated	
11B:							
Kalkaska	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
12B:							
Rubicon	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
12D:							
Rubicon	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
		Slope	0.01				
12E:							
Rubicon	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
		Slope	0.28				
12F:							
Rubicon	100	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
		Slope	0.99				
13B:							
Kalkaska	94	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
13D:							
Kalkaska	96	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.01				
13E:							
Kalkaska	100	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.28				
13F:							
Kalkaska	100	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.99				

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
16A:							
Paquin	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Cutbanks caving	1.00
		Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.01
				Seepage	0.95		
17A:							
Au Gres	92	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.64		
18:							
Kinross	92	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.95		
19A:							
Au Gres	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.64		
Deford	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.25		
20E:							
Rousseau	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.03				
Neconish	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Depth to saturated zone	0.01
				Seepage	0.23		
Finch	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
		Depth to cemented pan	1.00	Thin layer	1.00		
				Seepage	0.91		
21B:							
Garlic	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.91	Depth to water	1.00
21D:							
Garlic	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.91	Depth to water	1.00
		Slope	0.01				

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
21E:							
Garlic	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.91	Depth to water	1.00
		Slope	0.28				
22E:							
Rousseau	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.03				
Neconish	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Depth to saturated zone	0.01
				Seepage	0.23		
Deford	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.25		
24B:							
Rousseau	100	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
24D:							
Rousseau	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.01				
24E:							
Rousseau	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.28				
25B:							
Proper	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Depth to saturated zone	0.01
				Seepage	0.64		
26A:							
Spot	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
		Depth to cemented pan	1.00	Thin layer	1.00		
				Organic matter content	1.00		
				Ponding	1.00		
				Seepage	0.64		
Finch	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
		Depth to cemented pan	1.00	Thin layer	1.00		
				Seepage	0.91		

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
27A:							
Hendrie	50	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
						Cutbanks caving	0.10
				Piping	1.00		
				Ponding	1.00		
Annanias	30	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.81	Depth to saturated zone	1.00	Cutbanks caving	0.50
						Slow refill	0.19
				Piping	1.00		
30:							
Hendrie	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
						Cutbanks caving	0.10
				Piping	1.00		
				Ponding	1.00		
33:							
Pits, sand and gravel	100	Not rated		Not rated		Not rated	
34B:							
Liminga	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.45	Depth to water	1.00
34E:							
Liminga	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.45	Depth to water	1.00
		Slope	0.28				
36:							
Carbondale	30	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Organic matter content	1.00	Cutbanks caving	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
				Ponding	1.00		
Lupton	30	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Organic matter content	1.00	Cutbanks caving	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
				Ponding	1.00		
Tawas	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.91		

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
37:							
Dawson	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Piping	1.00		
				Ponding	1.00		
				Seepage	0.25		
Greenwood	30	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Organic matter content	1.00	Cutbanks caving	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
				Ponding	1.00		
Loxley	30	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Organic matter content	1.00	Cutbanks caving	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
				Ponding	1.00		
43:							
Ensley	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Slow refill	0.30
				Ponding	1.00		
56B:							
Shuberts	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Ponding	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	0.96	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Thin layer	0.96		
				Seepage	0.95		
Wurtsmith	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.91	Depth to saturated zone	0.01
Meehan	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.64		
61A:							
Ingalls	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.05		
Caffey	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
62B:							
McMillan----------	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.58	Depth to water	1.00
Greylock----------	35	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Seepage	0.03	Depth to water	1.00
62D:							
McMillan----------	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.58	Depth to water	1.00
Greylock----------	35	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Seepage	0.03	Depth to water	1.00
62E:							
Greylock----------	55	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Seepage	0.03	Depth to water	1.00
		Slope	0.28				
McMillan----------	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.58	Depth to water	1.00
		Slope	0.28				
63:							
Deford----------	92	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.25		
65:							
Ausable, frequently flooded----------	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.19		
Deford, frequently flooded----------	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.25		
Tawas, frequently flooded----------	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.91		
66:							
Markey----------	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.86		

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
67B:							
Pelkie, occasionally flooded	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Depth to saturated zone	0.01
				Seepage	0.86		
Deford, frequently flooded	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.25		
68F:							
Deer Park	98	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.91	Depth to water	1.00
		Slope	0.92				
69:							
Ruse	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
				Thin layer	1.00	Cutbanks caving	0.10
				Ponding	1.00		
				Seepage	0.03		
70F:							
Deer Park	60	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.91	Depth to water	1.00
		Slope	0.79				
Deford	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Ponding	1.00	Cutbanks caving	1.00
				Depth to saturated zone	1.00		
				Seepage	0.25		
Tawas	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.91		
72:							
Spot	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
		Depth to cemented pan	1.00	Thin layer	1.00		
				Organic matter content	1.00		
				Ponding	1.00		
				Seepage	0.64		
73B:							
Graveraet	40	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	1.00		
				Seepage	0.03		

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
73B:							
Gulliver----------	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
		Depth to bedrock	0.01	Piping	1.00	Depth to hard bedrock	0.01
				Thin layer	0.01		
76A:							
Shuberts----------	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Ponding	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	0.96	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Thin layer	0.96		
				Seepage	0.95		
Manistique----------	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	0.91	Seepage	0.97	Cutbanks caving	1.00
				Thin layer	0.91		
78B:							
Heinz----------	100	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.82	Depth to saturated zone	0.01
80F:							
Deer Park----------	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.91	Depth to water	1.00
		Slope	0.79				
Dawson----------	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Piping	1.00		
				Ponding	1.00		
				Seepage	0.25		
Wainola----------	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.43		
84:							
Dawson----------	65	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Piping	1.00		
				Ponding	1.00		
				Seepage	0.25		
Kinross----------	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.95		

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
86B:							
Wurtsmith	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.91	Depth to saturated zone	0.01
Tawas	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.91		
Deford	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.25		
87B:							
Longrie	60	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
		Depth to bedrock	0.66	Thin layer	0.66		
Amadon	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Seepage	0.01	Piping	1.00		
87D:							
Amadon	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Seepage	0.01	Piping	1.00		
		Slope	0.01				
Longrie	45	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
		Depth to bedrock	0.66	Thin layer	0.66		
		Slope	0.01				
87E:							
Amadon	65	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.28	Piping	1.00		
		Seepage	0.01				
Longrie	20	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
		Depth to bedrock	0.66	Thin layer	0.66		
		Slope	0.28				
Rock outcrop	15	Not rated		Not rated		Not rated	
88B:							
Cookson	55	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Thin layer	0.66	Depth to water	1.00
		Depth to bedrock	0.66	Seepage	0.01		
Amadon	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Seepage	0.01	Piping	1.00		

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
89B:							
Cookson	65	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Thin layer	0.66	Depth to water	1.00
		Depth to bedrock	0.66	Seepage	0.01		
Trenary	30	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.30	Seepage	0.03	Depth to water	1.00
90:							
Chippeny	100	Very limited		Very limited		Very limited	
		Seepage	1.00	Organic matter content	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	0.91	Depth to saturated zone	1.00	Cutbanks caving	0.10
				Piping	1.00		
				Ponding	1.00		
				Thin layer	0.91		
91:							
Cathro	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
Lupton	45	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Organic matter content	1.00	Cutbanks caving	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
				Ponding	1.00		
93A:							
Ruse	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
				Thin layer	1.00	Cutbanks caving	0.10
				Ponding	1.00		
				Seepage	0.03		
Ensign	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
		Seepage	0.01	Thin layer	1.00	Slow refill	0.30
				Organic matter content	1.00	Cutbanks caving	0.10
				Seepage	0.01		
98B:							
Guardlake	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
98D:							
Guardlake	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
98E:							
Guardlake	100	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.28				
116F:							
Udipsamments	50	Not rated		Not rated		Not rated	
Udorthents	50	Not rated		Not rated		Not rated	
119:							
Landfill	100	Not rated		Not rated		Not rated	
120A:							
Charlevoix	55	Somewhat limited		Very limited		Very limited	
		Seepage	0.30	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Slow refill	0.30
Ensley	30	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Slow refill	0.30
				Ponding	1.00		
122A:							
Wormet	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.91		
123:							
Minocqua	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.91		
125B:							
Stutts	65	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.91	Depth to water	1.00
Kalkaska	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
125D:							
Stutts	65	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.91	Depth to water	1.00
		Slope	0.01				
Kalkaska	25	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
		Slope	0.01				
125E:							
Stutts	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.91	Depth to water	1.00
		Slope	0.28				

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
125E:							
Kalkaska	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
		Slope	0.28				
131B:							
Furlong	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.99	Seepage	0.86		
Shingleton	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Seepage	0.07		
141A:							
Halfaday	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Depth to saturated zone	0.01
				Seepage	0.64		
145B:							
Noseum	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Depth to saturated zone	0.01
				Seepage	0.91		
155B:							
Karlin	100	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.91	Depth to water	1.00
160B:							
Paquin	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Cutbanks caving	1.00
		Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.01
				Seepage	0.95		
Finch	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
		Depth to cemented pan	1.00	Thin layer	1.00		
				Seepage	0.91		
218:							
Pits, quarry	100	Not rated		Not rated		Not rated	
219B:							
Cublake	100	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Depth to saturated zone	0.01
				Seepage	0.64		

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
222:							
Histosols	50	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Organic matter content	1.00	Cutbanks caving	0.10
				Ponding	1.00		
				Depth to saturated zone	1.00		
				Piping	1.00		
Aquents	50	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Ponding	1.00	Slow refill	0.30
						Cutbanks caving	0.10
225B:							
Cusino	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.91	Depth to water	1.00
248B:							
Escanaba	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.03	Depth to water	1.00
Greylock	40	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Seepage	0.03	Depth to water	1.00
249A:							
Iosco	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.08		
267A:							
Finch	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
		Depth to cemented pan	1.00	Thin layer	1.00		
				Seepage	0.91		
287B:							
Hiawatha	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.23	Depth to water	1.00
289B:							
Wallace	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Seepage	0.93		
289D:							
Wallace	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Seepage	0.93		
		Slope	0.01				

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
289E:							
Wallace	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Seepage	0.93		
		Slope	0.28				
294B:							
Munising, calcareous substratum	40	Somewhat limited		Very limited		Very limited	
		Seepage	0.81	Depth to saturated zone	1.00	Depth to water	1.00
Yalmer, calcareous substratum	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
				Seepage	0.01		
Frohling, calcareous substratum	20	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Seepage	0.05	Depth to water	1.00
295E:							
Dillingham	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Seepage	0.68		
		Slope	0.28				
Kalkaska	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.28				
355B:							
Springlake	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.91	Depth to water	1.00
366B:							
Gilchrist	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
				Thin layer	0.95		
				Seepage	0.64		
367B:							
Cozy	90	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Depth to water	1.00
				Thin layer	1.00		
400B:							
Amadon	75	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Seepage	0.02	Seepage	0.03		
Rock outcrop	25	Not rated		Not rated		Not rated	

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
401A:							
Ingalls	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.72		
490B:							
Pelkie, occasionally flooded	65	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.86	Depth to saturated zone	0.01
Arnheim, frequently flooded	25	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Piping	1.00	Slow refill	0.28
				Ponding	1.00		
491B:							
Neconish	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.23	Depth to saturated zone	0.01
Deford, rarely flooded	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.25		
Wainola	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.43		
492D:							
Wurtsmith	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.91	Depth to saturated zone	0.01
Duck	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.64	Depth to saturated zone	0.01
Rubicon	15	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
		Slope	0.01				
493A:							
Deford	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.25		

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
493A:							
Meehan----------	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.64		
Seney----------	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.64		
498B:							
Bursaw----------	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.84	Cutbanks caving	1.00
				Depth to saturated zone	0.78	Depth to saturated zone	0.10
				Thin layer	0.13		
Beavertail----------	20	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Slow refill	0.30
				Ponding	1.00		
				Seepage	0.02		
505B:							
Graveraet----------	90	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	1.00		
				Seepage	0.03		
505D:							
Graveraet----------	95	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	1.00		
				Seepage	0.03		
512A:							
Growton----------	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Slow refill	0.19
514B:							
Kalkaska, burned----	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
514D:							
Kalkaska, burned----	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.01				
514E:							
Kalkaska, burned----	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.50				

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
515B:							
Vilas----------	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.95	Depth to water	1.00
516A:							
Deford, drained-----	65	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.25	Depth to saturated zone	0.01
Meehan, drained-----	25	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Cutbanks caving	1.00
				Depth to saturated zone	0.46	Depth to saturated zone	0.24
517B:							
Mancelona----------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.93	Depth to water	1.00
517D:							
Mancelona----------	100	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.93	Depth to water	1.00
		Slope	0.01				
518A:							
Deford, frequently flooded----------	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.25		
Seney, frequently flooded----------	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.64		
519B:							
Trenary----------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.30	Seepage	0.03	Depth to water	1.00
520B:							
Rubicon----------	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
Sultz----------	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.25	Depth to water	1.00
520D:							
Rubicon----------	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
		Slope	0.01				
Sultz----------	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.25	Depth to water	1.00
		Slope	0.01				

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
525B:							
Neconish----------	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.23	Depth to saturated zone	0.01
Kinross----------	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.95		
Wainola----------	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.43		
526B:							
Graveraet----------	45	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	1.00		
				Seepage	0.03		
Angelica----------	35	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
						Cutbanks caving	0.10
				Piping	1.00		
				Ponding	1.00		
527B:							
Islandlake----------	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.79	Depth to water	1.00
McMillan----------	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.58	Depth to water	1.00
527D:							
Islandlake----------	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.79	Depth to water	1.00
McMillan----------	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.58	Depth to water	1.00
527E:							
Islandlake----------	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.79	Depth to water	1.00
		Slope	0.28				
McMillan----------	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.58	Depth to water	1.00
		Slope	0.28				
531B:							
Greylock----------	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Seepage	0.03	Depth to water	1.00

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
531D:							
Greylock	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Seepage	0.03	Depth to water	1.00
		Slope	0.01				
532:							
Angelica	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
						Cutbanks caving	0.10
				Piping	1.00		
				Ponding	1.00		
534:							
Pickford	100	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Depth to water	1.00
				Ponding	1.00		
				Hard to pack	0.49		
535B:							
Trenary	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.30	Seepage	0.03	Depth to water	1.00
535D:							
Trenary	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.30	Seepage	0.03	Depth to water	1.00
		Slope	0.01				
536B:							
Menominee, sandy substratum	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
537B:							
McMillan	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.58	Depth to water	1.00
537D:							
McMillan	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.58	Depth to water	1.00
		Slope	0.01				
538B:							
Menominee, sandy substratum	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
McMillan	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.58	Depth to water	1.00
540D:							
Deford	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.25		

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
540D:							
Rubicon	25	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
		Slope	0.01				
Au Gres	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.64		
541D:							
Kinross	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.95		
Au Gres	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.64		
Rubicon	15	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
		Slope	0.01				
543B:							
Auger, sandy substratum	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Cutbanks caving	1.00
				Depth to saturated zone	0.86	Depth to saturated zone	0.06
546B:							
Kalkaska, deep water table	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Cutbanks caving	1.00
						Depth to saturated zone	0.90
546D:							
Kalkaska, deep water table	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Cutbanks caving	1.00
		Slope	0.01			Depth to saturated zone	0.90
547B:							
Rubicon, very deep water table	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
547D:							
Rubicon, very deep water table	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
		Slope	0.01				

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
548B:							
McMillan	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.58	Depth to water	1.00
Trenary	35	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.30	Seepage	0.03	Depth to water	1.00
549B:							
Islandlake	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.79	Depth to water	1.00
549D:							
Islandlake	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.79	Depth to water	1.00
549E:							
Islandlake	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.79	Depth to water	1.00
		Slope	0.28				
551B:							
Kalkaska, very deep water table	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
551D:							
Kalkaska, very deep water table	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.01				
553:							
Carbondale	60	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Organic matter content	1.00	Cutbanks caving	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
				Ponding	1.00		
Loxley	40	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Organic matter content	1.00	Cutbanks caving	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
				Ponding	1.00		
554B:							
Duck	70	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.64	Depth to saturated zone	0.01
Halfaday	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Seepage	0.64	Depth to saturated zone	0.01

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
555D:							
Hiawatha----------	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.23	Depth to water	1.00
Deer Park----------	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.91	Depth to water	1.00
Rubicon----------	20	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.82	Depth to water	1.00
		Slope	0.01				
557B:							
Kalkaska, very deep water table, burned	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
557D:							
Kalkaska, very deep water table, burned	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.01				
558B:							
Islandlake, burned--	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.79	Depth to water	1.00
558D:							
Islandlake, burned--	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.79	Depth to water	1.00
559B:							
Kalkaska, deep water table, burned-----	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
560B:							
Islandlake, very deep water table---	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.79	Depth to water	1.00
561A:							
Croswell----------	92	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Depth to saturated zone	0.01
				Seepage	0.64		
562B:							
Croswell----------	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
						Depth to saturated zone	0.01
				Seepage	0.64		
Kinross----------	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
				Ponding	1.00		
				Seepage	0.95		

Table 14a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
563B:							
Halfaday	50	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.64	Very limited Cutbanks caving Depth to saturated zone	1.00 0.01
Kinross	40	Very limited Seepage	1.00	Very limited Depth to saturated zone Ponding Seepage	1.00 1.00 0.95	Very limited Cutbanks caving	1.00
564A:							
Ingalls	85	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.05	Very limited Cutbanks caving	1.00
565B:							
Rubicon, deep water table	95	Very limited Seepage	1.00	Somewhat limited Seepage	0.82	Very limited Cutbanks caving Depth to saturated zone	1.00 0.90
565D:							
Rubicon, deep water table	95	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.82	Very limited Cutbanks caving Depth to saturated zone	1.00 0.90
W:							
Water	100	Not rated		Not rated		Not rated	

Table 14b.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
10B:					
Amadon----------	75	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Water erosion	1.00	Deep to water	1.00
		Droughty	1.00	Cutbanks caving	1.00
		Slope	0.36		
Rock outcrop--------	25	Not rated		Not rated	
11B:					
Kalkaska----------	90	Somewhat limited		Very limited	
		Droughty	0.72	Cutbanks caving	1.00
		Slope	0.04	Deep to water	1.00
12B:					
Rubicon----------	90	Somewhat limited		Very limited	
		Droughty	0.93	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
12D:					
Rubicon----------	95	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.93	Deep to water	1.00
				Slope	0.37
12E:					
Rubicon----------	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.93	Cutbanks caving	1.00
				Deep to water	1.00
12F:					
Rubicon----------	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.93	Cutbanks caving	1.00
				Deep to water	1.00
13B:					
Kalkaska----------	94	Somewhat limited		Very limited	
		Droughty	0.87	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
13D:					
Kalkaska----------	96	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.87	Deep to water	1.00
				Slope	0.37

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
13E:					
Kalkaska	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.87	Cutbanks caving	1.00
				Deep to water	1.00
13F:					
Kalkaska	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.87	Cutbanks caving	1.00
				Deep to water	1.00
16A:					
Paquin	90	Very limited		Very limited	
		Droughty	1.00	Depth to thin cemented pan	1.00
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Slope	0.01	Cutbanks caving	1.00
17A:					
Au Gres	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.80	Cutbanks caving	1.00
18:					
Kinross	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.04	Cutbanks caving	1.00
				Ponding	1.00
19A:					
Au Gres	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.80	Cutbanks caving	1.00
Deford	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Ponding	1.00
20E:					
Rousseau	40	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.84	Deep to water	1.00
				Slope	1.00
Neconish	25	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Droughty	0.74	Cutbanks caving	1.00
		Slope	0.16		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
20E:					
Finch	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
		Droughty	1.00	Depth to saturated zone	1.00
		Slope	0.04	Cutbanks caving	1.00
21B:					
Garlic	90	Somewhat limited		Very limited	
		Droughty	0.74	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
21D:					
Garlic	90	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.74	Deep to water	1.00
				Slope	0.37
21E:					
Garlic	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.74	Cutbanks caving	1.00
				Deep to water	1.00
22E:					
Rousseau	45	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.84	Deep to water	1.00
				Slope	1.00
Neconish	25	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Droughty	0.74	Cutbanks caving	1.00
		Slope	0.16		
Deford	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Ponding	1.00
24B:					
Rousseau	100	Somewhat limited		Very limited	
		Droughty	0.84	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
24D:					
Rousseau	90	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.84	Deep to water	1.00
				Slope	0.37
24E:					
Rousseau	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.84	Cutbanks caving	1.00
				Deep to water	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
25B:					
Proper	85	Somewhat limited		Very limited	
		Droughty	0.89	Depth to saturated zone	1.00
		Depth to saturated zone	0.86	Cutbanks caving	1.00
		Slope	0.04		
26A:					
Spot	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
		Droughty	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Ponding	1.00
Finch	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
		Droughty	1.00	Depth to saturated zone	1.00
		Slope	0.04	Cutbanks caving	1.00
27A:					
Hendrie	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	1.00	Frost action	1.00
		Restricted permeability	0.21	Cutbanks caving	1.00
				Ponding	1.00
Annanias	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	1.00	Frost action	1.00
		Slope	0.04	Cutbanks caving	1.00
30:					
Hendrie	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	1.00	Frost action	1.00
		Restricted permeability	0.21	Cutbanks caving	1.00
				Ponding	1.00
33:					
Pits, sand and gravel	100	Not rated		Not rated	
34B:					
Liminga	90	Somewhat limited		Very limited	
		Droughty	0.75	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
34E:					
Liminga	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.75	Cutbanks caving	1.00
				Deep to water	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
36:					
Carbondale----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Organic matter content	1.00
				Frost action	1.00
				Ponding	1.00
				Cutbanks caving	1.00
Lupton----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Organic matter content	1.00
				Frost action	1.00
				Ponding	1.00
				Cutbanks caving	1.00
Tawas----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Frost action	1.00
				Ponding	1.00
				Organic matter content	1.00
37:					
Dawson----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Frost action	1.00
				Ponding	1.00
				Organic matter content	1.00
Greenwood----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Organic matter content	1.00
				Frost action	1.00
				Ponding	1.00
				Cutbanks caving	1.00
Loxley----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Organic matter content	1.00
				Frost action	1.00
				Ponding	1.00
				Cutbanks caving	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
43:					
Ensley----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	0.89	Cutbanks caving	1.00
				Frost action	1.00
				Ponding	1.00
56B:					
Shuberts----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to bedrock	1.00
		Droughty	1.00	Ponding	1.00
		Depth to bedrock	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Wurtsmith----------	25	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Droughty	0.74	Cutbanks caving	1.00
		Slope	0.16		
Meehan----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.96	Cutbanks caving	1.00
		Slope	0.04		
61A:					
Ingalls----------	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Caffey----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	1.00	Cutbanks caving	1.00
				Ponding	1.00
62B:					
McMillan----------	50	Very limited		Very limited	
		Water erosion	1.00	Cutbanks caving	1.00
		Droughty	0.20	Deep to water	1.00
		Slope	0.16		
Greylock----------	35	Somewhat limited		Very limited	
		Water erosion	0.17	Deep to water	1.00
		Slope	0.16	Cutbanks caving	1.00
62D:					
McMillan----------	45	Very limited		Very limited	
		Water erosion	1.00	Cutbanks caving	1.00
		Slope	1.00	Deep to water	1.00
		Droughty	0.20	Slope	0.16

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
62D:					
Greylock----------	35	Very limited		Very limited	
		Slope	1.00	Deep to water	1.00
		Water erosion	0.17	Cutbanks caving	1.00
				Slope	0.16
62E:					
Greylock----------	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Water erosion	0.17	Deep to water	1.00
				Cutbanks caving	1.00
McMillan----------	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Water erosion	1.00	Cutbanks caving	1.00
		Droughty	0.20	Deep to water	1.00
63:					
Deford----------	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Ponding	1.00
65:					
Ausable, frequently flooded----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
				Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Frost action	1.00
				Organic matter content	1.00
Deford, frequently flooded----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
				Depth to saturated zone	1.00
				Cutbanks caving	1.00
Tawas, frequently flooded----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
				Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Frost action	1.00
				Organic matter content	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
66:					
Markey	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Frost action	1.00
				Ponding	1.00
				Organic matter content	1.00
67B:					
Pelkie, occasionally flooded	50	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Droughty	0.14	Cutbanks caving	1.00
				Flooding	0.60
Deford, frequently flooded	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
				Depth to saturated zone	1.00
				Cutbanks caving	1.00
68F:					
Deer Park	98	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.85	Cutbanks caving	1.00
				Deep to water	1.00
69:					
Ruse	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.93	Frost action	1.00
		Water erosion	0.56	Cutbanks caving	1.00
				Ponding	1.00
70F:					
Deer Park	60	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.85	Cutbanks caving	1.00
				Deep to water	1.00
Deford	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00
				Depth to saturated zone	1.00
				Cutbanks caving	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
70F:					
Tawas	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Frost action	1.00
				Ponding	1.00
				Organic matter content	1.00
72:					
Spot	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
		Droughty	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Ponding	1.00
73B:					
Graveraet	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Cutbanks caving	1.00
				Dense layer	0.50
		Droughty	0.80		
		Water erosion	0.17		
Gulliver	35	Very limited		Very limited	
		Water erosion	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Cutbanks caving	1.00
		Slope	0.16	Depth to bedrock	0.01
		Depth to bedrock	0.01		
76A:					
Shuberts	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to bedrock	1.00
				Ponding	1.00
		Droughty	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00		
				Cutbanks caving	1.00
Manistique	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to bedrock	1.00
				Depth to saturated zone	1.00
		Depth to bedrock	1.00		
		Droughty	1.00	Cutbanks caving	1.00
		Slope	0.04		
78B:					
Heinz	100	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Droughty	0.69	Cutbanks caving	1.00
		Slope	0.16		
		Water erosion	0.01		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
80F:					
Deer Park----------	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.85	Cutbanks caving	1.00
				Deep to water	1.00
Dawson----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Frost action	1.00
				Ponding	1.00
				Organic matter content	1.00
Wainola----------	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.72	Cutbanks caving	1.00
				Deep to water	1.00
84:					
Dawson----------	65	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Frost action	1.00
				Ponding	1.00
				Organic matter content	1.00
Kinross----------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.04	Cutbanks caving	1.00
				Ponding	1.00
86B:					
Wurtsmith----------	50	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Droughty	0.74	Cutbanks caving	1.00
		Slope	0.16		
Tawas----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Frost action	1.00
				Ponding	1.00
				Organic matter content	1.00
Deford----------	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Ponding	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
87B:					
Longrie----------	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Water erosion	0.89	Deep to water	1.00
		Slope	0.16	Cutbanks caving	1.00
Amadon----------	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Water erosion	1.00	Deep to water	1.00
		Droughty	1.00	Cutbanks caving	1.00
		Slope	0.36		
87D:					
Amadon----------	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Water erosion	1.00	Deep to water	1.00
		Slope	1.00	Cutbanks caving	1.00
		Droughty	1.00	Slope	0.37
Longrie----------	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Deep to water	1.00
		Water erosion	0.89	Cutbanks caving	1.00
				Slope	0.37
87E:					
Amadon----------	65	Very limited		Very limited	
		Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Water erosion	1.00	Deep to water	1.00
		Droughty	1.00	Cutbanks caving	1.00
Longrie----------	20	Very limited		Very limited	
		Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Water erosion	0.89	Deep to water	1.00
				Cutbanks caving	1.00
Rock outcrop--------	15	Not rated		Not rated	
88B:					
Cookson----------	55	Very limited		Very limited	
		Water erosion	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Deep to water	1.00
				Cutbanks caving	1.00
Amadon----------	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Water erosion	1.00	Deep to water	1.00
		Droughty	1.00	Cutbanks caving	1.00
		Slope	0.36		
89B:					
Cookson----------	65	Very limited		Very limited	
		Water erosion	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Deep to water	1.00
				Cutbanks caving	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
89B:					
Trenary----------	30	Somewhat limited		Very limited	
		Slope	0.16	Deep to water	1.00
		Water erosion	0.01	Cutbanks caving	1.00
90:					
Chippeny----------	100	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to bedrock	1.00
		Water erosion	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Frost action	1.00
				Cutbanks caving	1.00
				Ponding	1.00
91:					
Cathro----------	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.60	Cutbanks caving	1.00
				Frost action	1.00
				Ponding	1.00
				Organic matter content	1.00
Lupton----------	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Organic matter content	1.00
				Frost action	1.00
				Ponding	1.00
				Cutbanks caving	1.00
93A:					
Ruse----------	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.93	Frost action	1.00
		Water erosion	0.56	Cutbanks caving	1.00
				Ponding	1.00
Ensign----------	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	1.00	Frost action	1.00
		Water erosion	0.17	Cutbanks caving	1.00
98B:					
Guardlake----------	90	Somewhat limited		Very limited	
		Slope	0.62	Cutbanks caving	1.00
		Droughty	0.46	Deep to water	1.00
		Water erosion	0.01		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
98D:					
Guardlake	95	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.46	Deep to water	1.00
		Water erosion	0.01	Slope	0.16
98E:					
Guardlake	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.46	Cutbanks caving	1.00
		Water erosion	0.01	Deep to water	1.00
116F:					
Udipsamments	50	Not rated		Not rated	
Udorthents	50	Not rated		Not rated	
119:					
Landfill	100	Not rated		Not rated	
120A:					
Charlevoix	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	1.00	Cutbanks caving	1.00
		Restricted permeability	0.15	Frost action	1.00
				Dense layer	0.50
		Slope	0.04		
Ensley	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	0.89	Cutbanks caving	1.00
				Frost action	1.00
				Ponding	1.00
122A:					
Wormet	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	0.17	Cutbanks caving	1.00
		Droughty	0.16		
123:					
Minocqua	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	1.00	Cutbanks caving	1.00
				Frost action	1.00
				Ponding	1.00
125B:					
Stutts	65	Somewhat limited		Very limited	
		Water erosion	0.17	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
		Droughty	0.01		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
125B:					
Kalkaska----------	35	Somewhat limited		Very limited	
		Droughty	0.72	Cutbanks caving	1.00
		Slope	0.04	Deep to water	1.00
125D:					
Stutts----------	65	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Water erosion	0.17	Deep to water	1.00
		Droughty	0.01	Slope	0.37
Kalkaska----------	25	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.72	Deep to water	1.00
				Slope	0.37
125E:					
Stutts----------	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Water erosion	0.17	Cutbanks caving	1.00
		Droughty	0.01	Deep to water	1.00
Kalkaska----------	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.72	Cutbanks caving	1.00
				Deep to water	1.00
131B:					
Furlong----------	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Cutbanks caving	1.00
		Slope	0.36	Deep to water	1.00
Shingleton----------	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Deep to water	1.00
		Restricted permeability	1.00	Cutbanks caving	1.00
		Slope	0.16		
141A:					
Halfaday----------	90	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Droughty	0.79	Cutbanks caving	1.00
		Slope	0.04		
145B:					
Noseum----------	85	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Water erosion	0.17	Cutbanks caving	1.00
		Slope	0.04		
155B:					
Karlin----------	100	Somewhat limited		Very limited	
		Droughty	0.29	Cutbanks caving	1.00
				Deep to water	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
160B:					
Paquin	55	Very limited		Very limited	
		Droughty	1.00	Depth to thin cemented pan	1.00
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Slope	0.16	Cutbanks caving	1.00
Finch	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
		Droughty	1.00	Depth to saturated zone	1.00
		Slope	0.04	Cutbanks caving	1.00
218:					
Pits, quarry	100	Not rated		Not rated	
219B:					
Cublake	100	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Slope	0.16	Cutbanks caving	1.00
		Droughty	0.04		
222:					
Histosols	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00
				Depth to saturated zone	1.00
				Organic matter content	1.00
				Frost action	1.00
Aquents	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00
				Depth to saturated zone	1.00
				Frost action	1.00
225B:					
Cusino	95	Somewhat limited		Very limited	
		Droughty	0.92	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
248B:					
Escanaba	50	Somewhat limited		Very limited	
		Slope	0.16	Cutbanks caving	1.00
				Deep to water	1.00
Greylock	40	Somewhat limited		Very limited	
		Water erosion	0.17	Deep to water	1.00
		Slope	0.16	Cutbanks caving	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
249A:					
Iosco	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.04	Cutbanks caving	1.00
		Droughty	0.01		
267A:					
Finch	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
		Droughty	1.00	Depth to saturated zone	1.00
		Slope	0.04	Cutbanks caving	1.00
287B:					
Hiawatha	85	Somewhat limited		Very limited	
		Droughty	0.96	Cutbanks caving	1.00
				Deep to water	1.00
				Depth to saturated zone	0.16
289B:					
Wallace	85	Very limited		Very limited	
		Droughty	1.00	Depth to thin cemented pan	1.00
		Slope	0.16	Cutbanks caving	1.00
				Deep to water	1.00
289D:					
Wallace	90	Very limited		Very limited	
		Droughty	1.00	Depth to thin cemented pan	1.00
		Slope	1.00	Cutbanks caving	1.00
				Deep to water	1.00
				Slope	0.37
289E:					
Wallace	95	Very limited		Very limited	
		Slope	1.00	Depth to thin cemented pan	1.00
		Droughty	1.00	Slope	1.00
				Cutbanks caving	1.00
				Deep to water	1.00
294B:					
Munising, calcareous substratum	40	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Cutbanks caving	1.00
		Restricted permeability	1.00	Dense layer	0.50
		Slope	0.16		
		Water erosion	0.01		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
294B:					
Yalmer, calcareous substratum---------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Cutbanks caving	1.00
		Depth to cemented pan	1.00	Dense layer	0.50
		Droughty	0.84		
		Depth to cemented pan	0.65		
Frohling, calcareous substratum---------	20	Very limited		Very limited	
		Depth to cemented pan	1.00	Cutbanks caving	1.00
		Restricted permeability	1.00	Deep to water	1.00
		Slope	0.62	Dense layer	0.50
		Water erosion	0.01		
295E:					
Dillingham----------	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to cemented pan	0.99	Cutbanks caving	1.00
		Droughty	0.98	Deep to water	1.00
				Depth to thin cemented pan	0.99
				Dense layer	0.50
Kalkaska----------	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.87	Cutbanks caving	1.00
				Deep to water	1.00
355B:					
Springlake----------	90	Somewhat limited		Very limited	
		Droughty	0.94	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
366B:					
Gilchrist----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	1.00	Cutbanks caving	1.00
		Slope	0.16	Dense layer	0.50
367B:					
Cozy----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	1.00	Cutbanks caving	1.00
		Water erosion	0.17	Dense layer	0.50
		Slope	0.04		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
400B:					
Amadon----------	75	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Water erosion	1.00	Deep to water	1.00
		Droughty	1.00	Cutbanks caving	1.00
		Slope	0.36		
Rock outcrop--------	25	Not rated		Not rated	
401A:					
Ingalls----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.35	Cutbanks caving	1.00
				Too acid	1.00
490B:					
Pelkie, occasionally flooded----------	65	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Droughty	0.07	Cutbanks caving	1.00
				Flooding	0.60
Arnheim, frequently flooded----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Water erosion	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Frost action	1.00
				Ponding	1.00
491B:					
Neconish----------	45	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Droughty	0.74	Cutbanks caving	1.00
		Slope	0.16		
Deford, rarely flooded----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Ponding	1.00
Wainola----------	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.72	Cutbanks caving	1.00
				Deep to water	1.00
492D:					
Wurtsmith----------	45	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Droughty	0.74	Cutbanks caving	1.00
		Slope	0.16		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
492D:					
Duck----------	30	Very limited		Very limited	
		Water erosion	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	0.86	Cutbanks caving	1.00
		Droughty	0.76		
		Slope	0.04		
Rubicon----------	15	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.93	Deep to water	1.00
				Slope	0.37
493A:					
Deford----------	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Ponding	1.00
Meehan----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.96	Cutbanks caving	1.00
		Slope	0.04		
Seney----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	1.00	Cutbanks caving	1.00
		Droughty	0.58		
		Slope	0.04		
498B:					
Bursaw----------	55	Very limited		Somewhat limited	
		Droughty	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	0.35		
Beavertail----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Cutbanks caving	1.00
				Frost action	1.00
		Water erosion	0.89	Ponding	1.00
		Droughty	0.04	Dense layer	0.50
505B:					
Graveraet----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Cutbanks caving	1.00
				Dense layer	0.50
		Droughty	0.80		
		Water erosion	0.17		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
505D:					
Graveraet----------	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Cutbanks caving	1.00
				Dense layer	0.50
		Slope	1.00	Slope	0.04
		Droughty	0.80		
512A:					
Growton----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.01	Cutbanks caving	1.00
		Water erosion	0.01		
514B:					
Kalkaska, burned----	90	Somewhat limited		Very limited	
		Droughty	0.87	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
514D:					
Kalkaska, burned----	95	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.87	Deep to water	1.00
				Slope	0.37
514E:					
Kalkaska, burned----	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.87	Cutbanks caving	1.00
				Deep to water	1.00
515B:					
Vilas----------	95	Somewhat limited		Very limited	
		Droughty	0.86	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
516A:					
Deford, drained-----	65	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
				Cutbanks caving	1.00
Meehan, drained-----	25	Somewhat limited		Very limited	
		Droughty	0.96	Cutbanks caving	1.00
		Depth to saturated zone	0.11	Deep to water	1.00
				Depth to saturated zone	0.95
		Slope	0.04		
517B:					
Mancelona----------	90	Somewhat limited		Very limited	
		Droughty	0.69	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
517D:					
Mancelona	100	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.69	Deep to water	1.00
				Slope	0.37
518A:					
Deford, frequently flooded	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
				Depth to saturated zone	1.00
				Cutbanks caving	1.00
Seney, frequently flooded	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Water erosion	1.00	Depth to saturated zone	1.00
		Droughty	0.58	Cutbanks caving	1.00
		Slope	0.04		
519B:					
Trenary	85	Somewhat limited		Very limited	
		Slope	0.16	Deep to water	1.00
		Water erosion	0.01	Cutbanks caving	1.00
520B:					
Rubicon	55	Somewhat limited		Very limited	
		Droughty	0.93	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
Sultz	40	Somewhat limited		Very limited	
		Droughty	0.86	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
520D:					
Rubicon	55	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.93	Deep to water	1.00
				Slope	0.37
Sultz	40	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.86	Deep to water	1.00
				Slope	0.37
525B:					
Neconish	35	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Droughty	0.74	Cutbanks caving	1.00
		Slope	0.16		
Kinross	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.04	Cutbanks caving	1.00
				Ponding	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
525B:					
Wainola----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.72	Cutbanks caving	1.00
				Deep to water	1.00
526B:					
Graveraet----------	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Cutbanks caving	1.00
				Dense layer	0.50
		Droughty	0.80		
		Water erosion	0.17		
Angelica----------	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	0.89	Frost action	1.00
		Restricted permeability	0.22	Cutbanks caving	1.00
				Ponding	1.00
527B:					
Islandlake----------	55	Somewhat limited		Very limited	
		Droughty	0.60	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
McMillan----------	45	Very limited		Very limited	
		Water erosion	1.00	Cutbanks caving	1.00
		Droughty	0.20	Deep to water	1.00
		Slope	0.16		
527D:					
Islandlake----------	55	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.60	Deep to water	1.00
				Slope	0.16
McMillan----------	35	Very limited		Very limited	
		Water erosion	1.00	Cutbanks caving	1.00
		Slope	1.00	Deep to water	1.00
		Droughty	0.20	Slope	0.16
527E:					
Islandlake----------	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.60	Cutbanks caving	1.00
				Deep to water	1.00
McMillan----------	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Water erosion	1.00	Cutbanks caving	1.00
		Droughty	0.20	Deep to water	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
531B:					
Greylock----------	90	Somewhat limited		Very limited	
		Water erosion	0.17	Deep to water	1.00
		Slope	0.16	Cutbanks caving	1.00
531D:					
Greylock----------	85	Very limited		Very limited	
		Slope	1.00	Deep to water	1.00
		Water erosion	0.17	Cutbanks caving	1.00
				Slope	0.37
532:					
Angelica----------	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	0.89	Frost action	1.00
		Restricted permeability	0.22	Cutbanks caving	1.00
				Ponding	1.00
534:					
Pickford----------	100	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	1.00	Frost action	1.00
		Restricted permeability	1.00	Cutbanks caving	1.00
				Ponding	1.00
				Too clayey	0.50
535B:					
Trenary----------	90	Somewhat limited		Very limited	
		Slope	0.36	Deep to water	1.00
		Water erosion	0.01	Cutbanks caving	1.00
535D:					
Trenary----------	90	Very limited		Very limited	
		Slope	1.00	Deep to water	1.00
		Water erosion	0.01	Cutbanks caving	1.00
				Slope	0.37
536B:					
Menominee, sandy substratum---------	90	Somewhat limited		Very limited	
		Droughty	0.42	Cutbanks caving	1.00
		Slope	0.36	Deep to water	1.00
537B:					
McMillan----------	85	Very limited		Very limited	
		Water erosion	1.00	Cutbanks caving	1.00
		Droughty	0.20	Deep to water	1.00
		Slope	0.16		
537D:					
McMillan----------	85	Very limited		Very limited	
		Water erosion	1.00	Cutbanks caving	1.00
		Slope	1.00	Deep to water	1.00
		Droughty	0.20	Slope	0.37

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
538B:					
Menominee, sandy substratum---------	50	Somewhat limited		Very limited	
		Droughty	0.42	Cutbanks caving	1.00
		Slope	0.36	Deep to water	1.00
McMillan----------	30	Very limited		Very limited	
		Water erosion	1.00	Cutbanks caving	1.00
		Droughty	0.20	Deep to water	1.00
		Slope	0.16		
540D:					
Deford----------	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
				Ponding	1.00
Rubicon----------	25	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.93	Deep to water	1.00
				Slope	0.37
Au Gres----------	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.80	Cutbanks caving	1.00
541D:					
Kinross----------	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.04	Cutbanks caving	1.00
				Ponding	1.00
Au Gres----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.80	Cutbanks caving	1.00
Rubicon----------	15	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.93	Deep to water	1.00
				Slope	0.37
543B:					
Auger, sandy substratum---------	85	Very limited		Very limited	
		Water erosion	1.00	Cutbanks caving	1.00
		Depth to saturated zone	0.47	Depth to saturated zone	1.00
		Slope	0.16		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
546B:					
Kalkaska, deep water table	95	Somewhat limited		Very limited	
		Droughty	0.87	Cutbanks caving	1.00
		Slope	0.04	Deep to water	1.00
				Depth to saturated zone	0.47
546D:					
Kalkaska, deep water table	90	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.87	Deep to water	1.00
				Depth to saturated zone	0.47
				Slope	0.37
547B:					
Rubicon, very deep water table	95	Somewhat limited		Very limited	
		Droughty	0.93	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
547D:					
Rubicon, very deep water table	95	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.93	Deep to water	1.00
				Slope	0.37
548B:					
McMillan	55	Very limited		Very limited	
		Water erosion	1.00	Cutbanks caving	1.00
		Droughty	0.20	Deep to water	1.00
		Slope	0.16		
Trenary	35	Somewhat limited		Very limited	
		Slope	0.36	Deep to water	1.00
		Water erosion	0.01	Cutbanks caving	1.00
549B:					
Islandlake	95	Somewhat limited		Very limited	
		Droughty	0.60	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
549D:					
Islandlake	95	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.60	Deep to water	1.00
				Slope	0.16
549E:					
Islandlake	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.60	Cutbanks caving	1.00
				Deep to water	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
551B:					
Kalkaska, very deep water table--------	95	Somewhat limited		Very limited	
		Droughty	0.87	Cutbanks caving	1.00
		Slope	0.04	Deep to water	1.00
551D:					
Kalkaska, very deep water table--------	95	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.87	Deep to water	1.00
				Slope	0.37
553:					
Carbondale----------	60	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Organic matter content	1.00
				Frost action	1.00
				Ponding	1.00
				Cutbanks caving	1.00
Loxley----------	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Organic matter content	1.00
				Frost action	1.00
				Ponding	1.00
				Cutbanks caving	1.00
554B:					
Duck----------	70	Very limited		Very limited	
		Water erosion	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	0.86	Cutbanks caving	1.00
		Droughty	0.76		
		Slope	0.04		
Halfaday----------	20	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Droughty	0.79	Cutbanks caving	1.00
		Slope	0.04		
555D:					
Hiawatha----------	35	Somewhat limited		Very limited	
		Droughty	0.96	Cutbanks caving	1.00
				Deep to water	1.00
				Depth to saturated zone	0.16
Deer Park----------	35	Somewhat limited		Very limited	
		Droughty	0.85	Cutbanks caving	1.00
		Slope	0.36	Deep to water	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
555D:					
Rubicon----------	20	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.93	Deep to water	1.00
				Slope	0.37
557B:					
Kalkaska, very deep water table, burned	95	Somewhat limited		Very limited	
		Droughty	0.87	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
557D:					
Kalkaska, very deep water table, burned	95	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.87	Deep to water	1.00
				Slope	0.37
558B:					
Islandlake, burned--	95	Somewhat limited		Very limited	
		Droughty	0.60	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
558D:					
Islandlake, burned--	95	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.60	Deep to water	1.00
				Slope	0.16
559B:					
Kalkaska, deep water table, burned-----	95	Somewhat limited		Very limited	
		Droughty	0.87	Cutbanks caving	1.00
		Slope	0.04	Deep to water	1.00
560B:					
Islandlake, very deep water table---	95	Somewhat limited		Very limited	
		Droughty	0.60	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
561A:					
Croswell----------	92	Somewhat limited		Very limited	
		Droughty	0.92	Depth to saturated zone	1.00
		Depth to saturated zone	0.86	Cutbanks caving	1.00
		Slope	0.04		
562B:					
Croswell----------	50	Somewhat limited		Very limited	
		Droughty	0.92	Depth to saturated zone	1.00
		Depth to saturated zone	0.86	Cutbanks caving	1.00
		Slope	0.16		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways		Drainage	
		Rating class and limiting features	Value	Rating class and limiting features	Value
562B:					
Kinross----------	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.04	Cutbanks caving	1.00
				Ponding	1.00
563B:					
Halfaday----------	50	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	1.00
		Droughty	0.79	Cutbanks caving	1.00
		Slope	0.04		
Kinross----------	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.04	Cutbanks caving	1.00
				Ponding	1.00
564A:					
Ingalls----------	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks caving	1.00
565B:					
Rubicon, deep water table----------	95	Somewhat limited		Very limited	
		Droughty	0.93	Cutbanks caving	1.00
		Slope	0.16	Deep to water	1.00
				Depth to saturated zone	0.47
565D:					
Rubicon, deep water table----------	95	Very limited		Very limited	
		Slope	1.00	Cutbanks caving	1.00
		Droughty	0.93	Deep to water	1.00
				Depth to saturated zone	0.47
				Slope	0.37
W:					
Water----------	100	Not rated		Not rated	

Table 15.--Engineering Index Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
10B:												
Amadon----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-8	Very fine sandy loam, silt loam	ML	A-4	0	0-5	95-100	90-100	75-100	40-90	0-20	NP-4
	8-10	Very fine sandy loam, silt loam	SM, ML	A-4	0	0-5	95-100	90-100	75-100	40-90	0-20	NP-4
	10-15	Silt loam, very fine sandy loam, fine sandy loam	SM, ML	A-2-4, A-4	0	0-5	95-100	90-100	55-95	25-80	0-20	NP-4
	15-80	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
11B:												
Kalkaska--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-6	Loamy sand	SM	A-2-4	0	0-5	95-100	85-100	50-75	15-30	0-14	NP-4
	6-8	Loamy sand	SM	A-2-4	0	0-5	95-100	85-100	50-75	15-30	0-14	NP-4
	8-12	Loamy sand, sand	SP-SM, SM	A-2-4, A-3	0	0-5	95-100	85-100	50-75	5-30	0-14	NP-4
	12-23	Sand	SM	A-2-4, A-3	0	0-5	95-100	85-100	50-70	5-15	0-14	NP
	23-38	Sand	SM	A-2-4, A-3	0	0-5	95-100	85-100	50-70	5-15	0-14	NP
	38-80	Sand	SM	A-3, A-2-4	0	0-5	95-100	75-100	50-70	5-15	0-14	NP
12B:												
Rubicon---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
12D:												
Rubicon---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
12E:												
Rubicon---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
12F:												
Rubicon---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
13B:												
Kalkaska--------	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
13D:												
Kalkaska--------	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
13E:												
Kalkaska--------	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
13F:												
Kalkaska--------	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
16A:												
Paquin----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-12	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	0	95-100	90-100	50-80	5-30	0-14	NP
	12-14	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	50-80	5-30	0-14	NP
	14-17	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	0	95-100	90-100	50-80	5-30	0-14	NP
	17-27	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	0	95-100	90-100	50-80	5-30	0-14	NP
	27-34	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	50-80	5-30	0-14	NP
	34-80	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	50-80	5-30	0-14	NP
17A:												
Au Gres---------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-7	Sand	SM	A-3, A-2-4	0	0	95-100	90-100	45-70	5-15	0-0	NP
	7-17	Sand	SM	A-2-4, A-3	0	0	95-100	90-100	45-70	5-15	0-0	NP
	17-28	Sand	SP-SM, SM	A-2-4, A-3	0	0	90-100	85-100	40-70	5-15	0-0	NP
	28-80	Sand	SP-SM, SM	A-2-4, A-3	0	0	90-100	85-100	40-70	5-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
18:												
Kinross---------	0-3	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	3-14	Sand	SP-SM, SM	A-2-4, A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	14-22	Sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	22-35	Sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	35-80	Sand, fine sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
19A:												
Au Gres---------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-7	Sand	SM	A-3, A-2-4	0	0	95-100	90-100	45-70	5-15	0-0	NP
	7-17	Sand	SM	A-2-4, A-3	0	0	95-100	90-100	45-70	5-15	0-0	NP
	17-28	Sand	SP-SM, SM	A-2-4, A-3	0	0	90-100	85-100	40-70	5-15	0-0	NP
	28-80	Sand	SP-SM, SM	A-2-4, A-3	0	0	90-100	85-100	40-70	5-15	0-0	NP
Deford----------	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40-95	5-35	0-0	NP
20E:												
Rousseau--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-4	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	4-20	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	20-33	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	33-66	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-5	100	95-100	50-95	5-35	0-0	NP
	66-80	Fine sand, sand	SP-SM, SM	A-2-4, A-3	0	0-5	100	95-100	50-95	5-35	0-0	NP
Neconish--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-8	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
	8-21	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
	21-32	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
	32-80	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
Finch----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-11	Fine sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
	11-42	Fine sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
	42-80	Fine sand, sand	SP-SM, SP	A-2-4, A-3	0	0	95-100	90-100	50-95	0-35	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
21B:												
Garlic----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-9	Sand	SP, SP-SM	A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
	9-11	Fine sand, sand	SP, SP-SM, SM	A-3, A-2-4	0	0	95-100	90-100	45-95	0-35	0-0	NP
	11-20	Sand, fine sand	SP, SM, SP-SM	A-3, A-2-4	0	0	95-100	90-100	45-95	0-35	0-0	NP
	20-29	Sand, fine sand	SP, SM, SP-SM	A-3, A-2-4	0	0	95-100	90-100	45-95	0-35	0-0	NP
	29-80	Sand, fine sand	SP, SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-95	0-35	0-0	NP
21D:												
Garlic----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-9	Sand	SP, SP-SM	A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
	9-11	Fine sand, sand	SP, SP-SM, SM	A-3, A-2-4	0	0	95-100	90-100	45-95	0-35	0-0	NP
	11-20	Sand, fine sand	SP, SM, SP-SM	A-3, A-2-4	0	0	95-100	90-100	45-95	0-35	0-0	NP
	20-29	Sand, fine sand	SP, SM, SP-SM	A-3, A-2-4	0	0	95-100	90-100	45-95	0-35	0-0	NP
	29-80	Sand, fine sand	SP, SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-95	0-35	0-0	NP
21E:												
Garlic----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-9	Sand	SP, SP-SM	A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
	9-11	Fine sand, sand	SP, SP-SM, SM	A-3, A-2-4	0	0	95-100	90-100	45-95	0-35	0-0	NP
	11-20	Sand, fine sand	SP, SM, SP-SM	A-3, A-2-4	0	0	95-100	90-100	45-95	0-35	0-0	NP
	20-29	Sand, fine sand	SP, SM, SP-SM	A-3, A-2-4	0	0	95-100	90-100	45-95	0-35	0-0	NP
	29-80	Sand, fine sand	SP, SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-95	0-35	0-0	NP
22E:												
Rousseau--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-4	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	4-20	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	20-33	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	33-66	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-5	100	95-100	50-95	5-35	0-0	NP
	66-80	Fine sand, sand	SP-SM, SM	A-2-4, A-3	0	0-5	100	95-100	50-95	5-35	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
22E:												
Neconish--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-8	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
	8-21	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
	21-32	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
	32-80	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
Deford----------	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40-95	5-35	0-0	NP
24B:												
Rousseau--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-4	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	4-20	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	20-33	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	33-66	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-5	100	95-100	50-95	5-35	0-0	NP
	66-80	Fine sand, sand	SP-SM, SM	A-2-4, A-3	0	0-5	100	95-100	50-95	5-35	0-0	NP
24D:												
Rousseau--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-4	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	4-20	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	20-33	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	33-66	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-5	100	95-100	50-95	5-35	0-0	NP
	66-80	Fine sand, sand	SP-SM, SM	A-2-4, A-3	0	0-5	100	95-100	50-95	5-35	0-0	NP
24E:												
Rousseau--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-4	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	4-20	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	20-33	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	33-66	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-5	100	95-100	50-95	5-35	0-0	NP
	66-80	Fine sand, sand	SP-SM, SM	A-2-4, A-3	0	0-5	100	95-100	50-95	5-35	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
25B:												
Proper----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-11	Sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-95	5-35	0-0	NP
	11-16	Sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-95	5-35	0-0	NP
	16-21	Sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-95	5-35	0-0	NP
	21-32	Sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	32-80	Sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
26A:												
Spot----------	0-2	Peat	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-8	Fine sand, sand	SP-SM, SM	A-3, A-2-4	0	0	95-100	90-100	45-95	5-35	---	NP
	8-10	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	0	95-100	90-100	45-95	5-35	---	NP
	10-18	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-95	5-35	---	NP
	18-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-95	5-35	---	NP
Finch----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-11	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
	11-42	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
	42-80	Fine sand, sand	SP-SM, SP	A-2-4, A-3	0	0	95-100	90-100	50-95	0-35	0-0	NP
27A:												
Hendrie---------	0-4	Mucky peat	PT	A-8	0	0	100	100	---	---	---	NP
	4-7	Silt loam	ML, CL-ML	A-4	0	0	100	100	90-100	70-90	0-20	NP-4
	7-16	Silt loam	ML, CL-ML	A-4	0	0	100	100	90-100	70-90	0-25	NP-7
	16-80	Silt loam	ML, CL-ML	A-4	0	0	100	100	90-100	70-90	0-25	NP-7
Annanias--------	0-4	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	4-7	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	0-20	NP-4
	7-10	Silt loam	ML, CL-ML	A-4	0	0	100	100	85-100	50-90	0-25	NP-7
	10-15	Silt loam	ML, CL-ML	A-4	0	0	100	100	85-100	50-90	0-25	NP-7
	15-26	Silt loam, very fine sandy loam	ML, CL-ML	A-4	0	0	100	100	85-95	50-65	0-25	NP-7
	26-47	Stratified silt loam to very fine sandy loam	ML, CL-ML	A-4	0	0	100	100	85-100	50-90	0-25	NP-7
	47-80	Stratified silt loam to silt	ML, CL-ML	A-4	0	0	100	100	90-100	70-90	0-25	NP-7

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
30:												
Hendrie---------	0-4	Mucky peat	PT	A-8	0	0	100	100	---	---	---	NP
	4-7	Silt loam	ML, CL-ML	A-4	0	0	100	100	90-100	70-90	0-20	NP-4
	7-16	Silt loam	ML, CL-ML	A-4	0	0	100	100	90-100	70-90	0-25	NP-7
	16-80	Silt loam	ML, CL-ML	A-4	0	0	100	100	90-100	70-90	0-25	NP-7
33. Pits, sand and gravel												
34B:												
Liminga---------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-7	Fine sand	SP-SM, SM	A-2-4	0	0-5	95-100	95-100	60-80	10-35	0-14	NP
	7-9	Fine sand	SM, SP-SM	A-2-4	0	0-5	95-100	95-100	60-80	10-35	0-14	NP
	9-22	Fine sand	SP-SM, SM	A-2-4	0	0-5	95-100	95-100	60-80	10-35	0-14	NP
	22-31	Fine sand	SP-SM, SM	A-2-4	0	0-5	95-100	95-100	60-80	10-35	0-14	NP
	31-80	Fine sand	SP-SM, SM	A-2-4	0	0-5	95-100	95-100	60-80	10-35	0-14	NP
34E:												
Liminga---------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-7	Fine sand	SP-SM, SM	A-2-4	0	0-5	95-100	95-100	60-80	10-35	0-14	NP
	7-9	Fine sand	SM, SP-SM	A-2-4	0	0-5	95-100	95-100	60-80	10-35	0-14	NP
	9-22	Fine sand	SP-SM, SM	A-2-4	0	0-5	95-100	95-100	60-80	10-35	0-14	NP
	22-31	Fine sand	SP-SM, SM	A-2-4	0	0-5	95-100	95-100	60-80	10-35	0-14	NP
	31-80	Fine sand	SP-SM, SM	A-2-4	0	0-5	95-100	95-100	60-80	10-35	0-14	NP
36:												
Carbondale------	0-38	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	38-80	Mucky peat	PT	A-8	0	0	100	100	90-100	40-100	---	NP
Lupton----------	0-4	Peat	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Muck	PT	A-8	0	0	100	100	90-100	40-100	0-0	NP
Tawas----------	0-26	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	26-80	Sand, fine sand, coarse sand, gravelly sand	SP-SM, SP	A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
37:												
Dawson----------	0-10	Peat	PT	A-8	0	0	100	100	100	90-100	---	NP
	10-38	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	NP
	38-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0	90-100	50-100	40-95	0-35	0-0	NP
Greenwood-------	0-65	Mucky peat	PT	A-8	0	0	100	100	100	90-100	---	NP
	65-80	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	NP
Loxley----------	0-8	Peat	PT	A-8	0	0	100	100	100	90-100	---	NP
	8-80	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	NP
43:												
Ensley----------	0-5	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	5-7	Mucky loam, mucky fine sandy loam, mucky sandy loam	SM, ML	A-4, A-2-4	0-4	0-7	90-100	85-100	50-95	25-75	0-20	NP-4
	7-19	Fine sandy loam, sandy loam, loam	ML, SM	A-4, A-2-4	0-4	0-7	90-100	85-100	50-95	25-75	0-20	NP-3
	19-80	Gravelly fine sandy loam	SM	A-4	0-4	0-15	65-85	60-80	45-75	25-50	16-26	NP-8
56B:												
Shuberts--------	0-6	Muck	PT	A-8	0	0	100	100	---	---	---	---
	6-25	Fine sand, sand, gravelly sand	SP-SM, SM	A-2-4	0	0-15	55-100	50-100	30-100	0-75	0-0	NP
	25-80	Bedrock	---	---	---	---	---	---	---	---	---	---
Wurtsmith-------	0-2	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
	2-7	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
	7-15	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
	15-26	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
	26-80	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
56B:												
Meehan----------	0-3	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	3-7	Loamy sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	7-11	Sand, loamy sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	11-23	Sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	23-80	Sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
61A:												
Ingalls---------	0-1	Slightly decomposed plant material	PT	A-8	---	---	100	100	---	---	---	---
	1-3	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	3-10	Fine sand, loamy sand, sand	SP, SP-SM	A-3, A-2-4	0	0	90-100	85-100	40-95	0-35	0-26	NP-6
	10-17	Sand, loamy sand	SP-SM, SP	A-3	0	0	90-100	85-100	45-70	0-10	0-31	NP-4
	17-23	Loamy sand, fine sand, sand	SP, SP-SM	A-3, A-2-4	0	0	90-100	85-100	40-95	0-35	0-33	NP-6
	23-43	Fine sand, sand, loamy fine sand	SP, SM, SP-SM	A-3, A-2-4	0	0	90-100	85-100	40-95	0-35	0-26	NP-6
	43-80	Stratified loamy fine sand to fine sandy loam to silt loam	ML, SM	A-4	0	0	100	100	60-100	35-95	0-27	NP-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
61A:												
Caffey----------	0-6	Muck	PT	A-8	0	0	100	100	---	---	---	---
	6-12	Fine sand, sand, loamy sand	SM	A-2-4, A-3	0	0	100	100	50-80	5-35	0-0	NP
	12-21	Fine sand, sand, loamy sand	SM	A-2-4, A-3	0	0	100	100	50-80	5-35	0-0	NP
	21-35	Stratified very fine sandy loam to silt loam	ML, CL-ML	A-4, A-6	0	0-3	100	95-100	80-100	50-90	0-34	NP-14
	35-80	Very fine sandy loam, stratified very fine sandy loam to silt loam to silty clay loam	ML, CL-ML	A-4, A-6	0	0-3	100	95-100	80-100	50-95	0-46	NP-23
62B:												
McMillan--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-75	30-50	0-25	NP-7
	4-6	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	6-9	Very fine sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	9-16	Very fine sandy loam, fine sandy loam	SM, SC-SM	A-4, A-2-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	16-22	Loamy fine sand, loamy sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	22-32	Sand, fine sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	32-80	Stratified sand to loamy sand	SC-SM, SM, SP-SM	A-2, A-3, A-1	0	0-7	90-100	85-100	35-75	5-30	0-14	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
62B:												
Greylock--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-6	Sandy loam, fine sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	0-31	NP-4
	6-7	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	0-25	NP-4
	7-9	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	16-33	1-6
	9-19	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	16-33	1-6
	19-26	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	17-27	3-10
	26-34	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	17-27	3-10
	34-80	Sandy loam, gravelly fine sandy loam	SM	A-2-4, A-4	0	0-15	85-100	80-95	45-85	20-50	17-26	3-9

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
62D:												
McMillan--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-75	30-50	0-25	NP-7
	4-6	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	6-9	Very fine sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	9-16	Very fine sandy loam, fine sandy loam	SM, SC-SM	A-4, A-2-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	16-22	Loamy fine sand, loamy sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	22-32	Sand, fine sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	32-80	Stratified sand to loamy sand	SC-SM, SM, SP-SM	A-2, A-3, A-1	0	0-7	90-100	85-100	35-75	5-30	0-14	NP
Greylock--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-6	Sandy loam, fine sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	0-31	NP-4
	6-7	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	0-25	NP-4
	7-9	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	16-33	1-6
	9-19	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	16-33	1-6
	19-26	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	17-27	3-10
	26-34	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	17-27	3-10
	34-80	Sandy loam, gravelly fine sandy loam	SM	A-2-4, A-4	0	0-15	85-100	80-95	45-85	20-50	17-26	3-9

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
62E:												
Greylock--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-6	Sandy loam, fine sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	0-31	NP-4
	6-7	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	0-25	NP-4
	7-9	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	16-33	1-6
	9-19	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	16-33	1-6
	19-26	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	17-27	3-10
	26-34	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	17-27	3-10
	34-80	Sandy loam, gravelly fine sandy loam	SM	A-2-4, A-4	0	0-15	85-100	80-95	45-85	20-50	17-26	3-9
McMillan--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-75	30-50	0-25	NP-7
	4-6	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	6-9	Very fine sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	9-16	Very fine sandy loam, fine sandy loam	SM, SC-SM	A-4, A-2-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	16-22	Loamy fine sand, loamy sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	22-32	Sand, fine sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	32-80	Stratified sand to loamy sand	SC-SM, SM, SP-SM	A-2, A-3, A-1	0	0-7	90-100	85-100	35-75	5-30	0-14	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
63:												
Deford----------	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40-95	5-35	0-0	NP
65:												
Ausable, frequently flooded--------	0-9	Muck	PT	A-8	0	0	100	100	---	---	---	---
	9-35	Stratified sand to highly decomposed plant material, stratified sand	SP-SM	A-3	0	0-3	100	85-100	45-70	5-15	0-0	NP
	35-45	Stratified highly decomposed plant material to sand, stratified sand	PT	A-8	0	0	100	100	---	---	---	---
	45-80	Sand	SP-SM	A-3	0	0-3	100	85-100	45-70	5-15	0-0	NP
Deford, frequently flooded--------	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40-95	5-35	0-0	NP
Tawas, frequently flooded--------	0-26	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	26-80	Sand, fine sand, coarse sand, gravelly sand	SP-SM, SP	A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
66:												
Markey----------	0-3	Mucky peat	PT	A-8	0	0	100	100	100	90-100	---	NP
	3-20	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	NP
	20-80	Sand	SP-SM	A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
67B:												
Pelkie, occasionally flooded--------	0-4	Loamy fine sand	ML, SM	A-2-4, A-4	0	0	100	90-100	45-95	15-55	0-28	NP-9
	4-38	Sand, fine sand, loamy fine sand	SM	A-2-4	0	0	100	90-100	45-85	5-50	0-0	NP
	38-80	Fine sand, sand	SM	A-2-4	0	0	100	90-100	45-80	5-35	0-0	NP
Deford, frequently flooded--------	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40-95	5-35	0-0	NP
68F:												
Deer Park-------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-3	Sand	SP-SM, SP	A-3	0	0	100	100	50-70	0-15	0-0	NP
	3-10	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	0	100	100	50-95	0-35	0-0	NP
	10-21	Sand, fine sand	SP-SM, SP	A-3, A-2-4	0	0	100	100	50-95	0-35	0-0	NP
	21-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	0	100	100	50-95	0-35	0-0	NP
69:												
Ruse----------	0-7	Mucky silt loam, mucky loam	SM, ML	A-4, A-2-4	0	0-15	85-100	75-100	45-100	20-90	0-30	NP-11
	7-11	Sandy loam, fine sandy loam	ML, SM	A-2-4, A-4	0	0-15	85-100	75-100	45-85	20-50	0-30	NP-11
	11-15	Sandy loam, fine sandy loam	SM, ML	A-2-4, A-4	0	0-15	85-100	75-100	45-85	20-50	0-30	NP-11
	15-80	Bedrock	---	---	---	---	---	---	---	---	---	---
70F:												
Deer Park-------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-3	Sand	SP-SM, SP	A-3	0	0	100	100	50-70	0-15	0-0	NP
	3-10	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	0	100	100	50-95	0-35	0-0	NP
	10-21	Sand, fine sand	SP-SM, SP	A-3, A-2-4	0	0	100	100	50-95	0-35	0-0	NP
	21-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	0	100	100	50-95	0-35	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
70F:												
Deford----------	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40-95	5-35	0-0	NP
Tawas----------	0-26	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	26-80	Sand, fine sand, coarse sand, gravelly sand	SP-SM, SP	A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
72:												
Spot----------	0-2	Peat	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-8	Fine sand, sand	SP-SM, SM	A-3, A-2-4	0	0	95-100	90-100	45-95	5-35	0-0	NP
	8-10	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	0	95-100	90-100	45-95	5-35	0-0	NP
	10-18	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-95	5-35	0-0	NP
	18-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-95	5-35	0-0	NP
73B:												
Graveraet-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	ML, SM	A-4	0	0-15	85-100	85-100	55-85	30-50	15-25	NP-7
	4-7	Fine sandy loam	ML, SM	A-4	0	0-15	85-100	85-100	55-85	30-50	15-25	NP-7
	7-10	Fine sandy loam, sandy loam	SM, ML	A-4	0	0-15	85-100	85-100	55-85	30-60	15-25	NP-7
	10-17	Fine sandy loam, sandy loam	SM, ML	A-4	0	0-15	85-100	85-100	55-85	30-60	15-25	NP-7
	17-33	Loamy sand, loam, sandy clay loam	ML, SM	A-2-4, A-4	0	0-15	85-100	85-100	50-80	25-55	15-25	NP-7
	33-48	Sandy clay loam, loamy sand, fine sandy loam	CL-ML, CL	A-2-4, A-4	0	0-15	85-100	85-100	60-80	25-55	25-35	4-15
	48-68	Sandy clay loam, fine sandy loam	CL, CL-ML	A-4	0	0-15	85-100	85-100	60-80	25-55	25-35	4-15
	68-80	Sandy loam	SM, ML	A-2-4, A-4	0	0-15	85-95	85-95	35-80	15-50	15-25	NP-7

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
73B:												
Gulliver--------	0-4	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	90-100	75-100	45-95	0-21	NP-4
	4-9	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	90-100	75-100	45-95	0-21	NP-4
	9-12	Very fine sandy loam, silt loam, silt	ML	A-4	0	0	95-100	90-100	75-100	45-95	0-21	NP-4
	12-19	Fine sandy loam, sandy loam	SM, ML	A-4	0	0	95-100	90-100	75-100	45-95	0-21	NP-4
	19-24	Fine sandy loam, sandy loam, loamy fine sand	ML, SM	A-4, A-2-4	0	0	85-100	75-100	45-90	20-70	15-28	NP-9
	24-30	Fine sandy loam, sandy loam	ML, SM	A-2-4, A-4	0	0	85-100	75-100	45-90	20-70	15-28	NP-9
	30-58	Gravelly fine sandy loam, fine sandy loam, sandy loam	ML, SM	A-4, A-2-4	0	0-5	85-100	75-100	45-90	20-70	15-28	NP-9
	58-80	Bedrock	---	---	---	---	---	---	---	---	---	---
76A:												
Shuberts--------	0-6	Muck	PT	A-8	0	0	100	100	---	---	---	---
	6-25	Fine sand, sand, gravelly sand	SP-SM, SM	A-2-4	0	0-15	55-100	50-100	30-100	0-75	0-0	NP
	25-80	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
76A:												
Manistique------	0-2	Gravelly fine sand, fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0-30	55-100	50-100	30-95	0-35	0-0	NP
	2-12	Sand, fine sand, gravelly fine sand	SP-SM, SM	A-3, A-2-4	0	0-30	55-100	50-100	30-95	0-35	0-0	NP
	12-24	Sand, fine sand, gravelly sand	SP-SM, SM	A-3, A-2-4	0	0-30	55-100	50-100	30-95	0-35	0-0	NP
	24-28	Gravelly sand, fine sand, sand	SP-SM, SM	A-1, A-2-4, A-3	0	0-30	55-100	50-100	30-95	0-35	0-0	NP
	28-80	Bedrock	---	---	---	---	---	---	---	---	---	---
78B:												
Heinz----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-5	Fine sandy loam, sandy loam	SM	A-1-b, A-2-4, A-4	0	0-7	90-100	75-100	45-70	20-40	15-20	NP-4
	5-6	Sandy loam, loamy sand	SM, SP-SM	A-1-b, A-2-4, A-4	0	0-7	90-100	75-100	35-70	10-40	15-20	NP-4
	6-8	Sandy loam, fine sandy loam	SM	A-1-b, A-2-4, A-4	0	0-7	90-100	75-100	40-85	20-50	15-20	NP-4
	8-25	Loamy sand, sand, gravelly sand	SP-SM, SM	A-1-b, A-2-4, A-3	0	0-7	90-100	50-90	30-60	0-30	15-20	NP-4
	25-80	Gravelly sand, very gravelly sand	SP, GP-GM, GP, SP-SM	A-1	0	1-15	45-75	40-65	15-60	0-20	0-19	NP
80F:												
Deer Park-------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-3	Sand	SP-SM, SP	A-3	0	0	100	100	50-70	0-15	0-0	NP
	3-10	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	0	100	100	50-95	0-35	0-0	NP
	10-21	Sand, fine sand	SP-SM, SP	A-3, A-2-4	0	0	100	100	50-95	0-35	0-0	NP
	21-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	0	100	100	50-95	0-35	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
80F:												
Dawson----------	0-10	Peat	PT	A-8	0	0	100	100	100	90-100	---	NP
	10-38	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	NP
	38-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0	90-100	50-100	40-95	0-35	0-0	NP
Wainola---------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-12	Fine sand	SM	A-2-4	0	0	100	100	50-80	5-35	---	NP
	12-18	Fine sand	SM	A-2-4	0	0	100	100	50-80	5-35	---	NP
	18-27	Fine sand	SM	A-2-4	0	0	100	100	50-80	5-35	---	NP
	27-41	Fine sand	SM	A-2-4	0	0	100	100	50-80	5-35	---	NP
	41-80	Very fine sand, fine sand	SM	A-2-4, A-4	0	0	100	100	50-90	20-50	---	NP
84:												
Dawson----------	0-10	Peat	PT	A-8	0	0	100	100	100	90-100	---	NP
	10-38	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	NP
	38-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0	90-100	50-100	40-95	0-35	0-0	NP
Kinross---------	0-3	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	3-14	Sand	SP-SM, SM	A-2-4, A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	14-22	Sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	22-35	Sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	35-80	Sand, fine sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
86B:												
Wurtsmith-------	0-2	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
	2-7	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
	7-15	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
	15-26	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
	26-80	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
Tawas----------	0-26	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	26-80	Sand, fine sand, coarse sand, gravelly sand	SP-SM, SP	A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
Deford----------	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40-95	5-35	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
87B:												
Longrie---------	0-1	Moderately decomposed plant material	PT	A-8	0	0	---	100	---	---	---	---
	1-2	Highly decomposed plant material	PT	A-8	0	0	---	100	---	---	---	---
	2-6	Silt loam, very fine sandy loam	SM, ML	A-4	0	0-5	90-100	85-100	75-100	40-90	0-20	NP-4
	6-8	Silt loam, very fine sandy loam	SM, ML	A-4	0	0-5	95-100	90-100	75-100	40-90	0-20	NP-4
	8-23	Silt loam, very fine sandy loam, fine sandy loam	SM, ML	A-4	0	0-5	90-100	85-100	45-100	25-90	0-20	NP-4
	23-36	Sandy loam, fine sandy loam, gravelly sandy loam	SM, ML	A-4	0	0-5	90-100	85-100	55-95	25-60	0-20	NP-4
	36-80	Bedrock	---	---	---	---	---	---	---	---	---	---
Amadon----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-8	Silt loam, very fine sandy loam	ML	A-4	0	0-5	95-100	90-100	75-100	40-90	0-20	NP-4
	8-10	Silt loam, very fine sandy loam	SM, ML	A-4	0	0-5	95-100	90-100	75-100	40-90	0-20	NP-4
	10-15	Silt loam, very fine sandy loam, fine sandy loam	SM, ML	A-2-4, A-4	0	0-5	95-100	90-100	55-95	25-80	0-20	NP-4
	15-80	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
87D:												
Amadon----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-8	Very fine sandy loam, silt loam	ML	A-4	0	0-5	95-100	90-100	75-100	40-90	0-20	NP-4
	8-10	Very fine sandy loam, silt loam	SM, ML	A-4	0	0-5	95-100	90-100	75-100	40-90	0-20	NP-4
	10-15	Silt loam, very fine sandy loam, fine sandy loam	SM, ML	A-2-4, A-4	0	0-5	95-100	90-100	55-95	25-80	0-20	NP-4
	15-80	Bedrock	---	---	---	---	---	---	---	---	---	---
Longrie---------	0-1	Moderately decomposed plant material	PT	A-8	0	0	---	100	---	---	---	---
	1-2	Highly decomposed plant material	PT	A-8	0	0	---	100	---	---	---	---
	2-6	Silt loam, very fine sandy loam	SM, ML	A-4	0	0-5	90-100	85-100	75-100	40-90	0-20	NP-4
	6-8	Silt loam, very fine sandy loam	SM, ML	A-4	0	0-5	95-100	90-100	75-100	40-90	0-20	NP-4
	8-23	Silt loam, very fine sandy loam, fine sandy loam	SM, ML	A-4	0	0-5	90-100	85-100	45-100	25-90	0-20	NP-4
	23-36	Sandy loam, fine sandy loam, gravelly sandy loam	SM, ML	A-4	0	0-5	90-100	85-100	55-95	25-60	0-20	NP-4
	36-80	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
87E:												
Amadon----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-8	Very fine sandy loam, silt loam	ML	A-4	0	0-5	95-100	90-100	75-100	40-90	0-20	NP-4
	8-10	Very fine sandy loam, silt loam	SM, ML	A-4	0	0-5	95-100	90-100	75-100	40-90	0-20	NP-4
	10-15	Silt loam, very fine sandy loam, fine sandy loam	SM, ML	A-2-4, A-4	0	0-5	95-100	90-100	55-95	25-80	0-20	NP-4
	15-80	Bedrock	---	---	---	---	---	---	---	---	---	---
Longrie---------	0-1	Moderately decomposed plant material	PT	A-8	0	0	---	100	---	---	---	---
	1-2	Highly decomposed plant material	PT	A-8	0	0	---	100	---	---	---	---
	2-6	Silt loam, very fine sandy loam	SM, ML	A-4	0	0-5	90-100	85-100	75-100	40-90	0-20	NP-4
	6-8	Silt loam, very fine sandy loam	SM, ML	A-4	0	0-5	95-100	90-100	75-100	40-90	0-20	NP-4
	8-23	Silt loam, very fine sandy loam, fine sandy loam	SM, ML	A-4	0	0-5	90-100	85-100	45-100	25-90	0-20	NP-4
	23-36	Sandy loam, fine sandy loam, gravelly sandy loam	SM, ML	A-4	0	0-5	90-100	85-100	55-95	25-60	0-20	NP-4
	36-80	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
88B:												
Cookson---------	0-3	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	3-7	Very fine sandy loam, fine sandy loam, silt loam	SM, ML	A-2-4, A-4	0	0-3	95-100	75-100	50-100	30-90	0-34	NP-15
	7-11	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-2-4, A-4	0	0-3	95-100	75-100	50-100	30-90	0-34	NP-15
	11-16	Very fine sandy loam, fine sandy loam, sandy loam, silt loam	SM, ML	A-2-4, A-4	0	0-3	95-100	75-100	50-100	30-90	0-34	NP-15
	16-21	Fine sandy loam, sandy loam, loamy fine sand	ML, SM	A-4, A-2-4	0	0-3	90-100	75-100	50-100	30-90	0-34	NP-15
	21-31	Sandy clay loam, fine sandy loam, sandy loam, silt loam	ML, SM	A-4, A-2-4	0	0-3	95-100	75-100	50-100	30-90	0-41	NP-15
	31-36	Loam, sandy loam, fine sandy loam, silt loam	SM, ML	A-2-4, A-4	0	0-3	95-100	75-100	45-100	20-90	0-41	NP-15
	36-80	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
88B:												
Amadon----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-8	Very fine sandy loam, silt loam	ML	A-4	0	0-5	95-100	90-100	75-100	40-90	0-20	NP-4
	8-10	Very fine sandy loam, silt loam	SM, ML	A-4	0	0-5	95-100	90-100	75-100	40-90	0-20	NP-4
	10-15	Silt loam, very fine sandy loam, fine sandy loam	SM, ML	A-2-4, A-4	0	0-5	95-100	90-100	55-95	25-80	0-20	NP-4
	15-80	Bedrock	---	---	---	---	---	---	---	---	---	---
89B:												
Cookson---------	0-3	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	3-7	Very fine sandy loam, fine sandy loam, silt loam	SM, ML	A-2-4, A-4	0	0-3	95-100	75-100	50-100	30-90	0-34	NP-15
	7-11	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-2-4, A-4	0	0-3	95-100	75-100	50-100	30-90	0-34	NP-15
	11-16	Very fine sandy loam, fine sandy loam, sandy loam, silt loam	SM, ML	A-2-4, A-4	0	0-3	95-100	75-100	50-100	30-90	0-34	NP-15
	16-21	Fine sandy loam, sandy loam, loamy fine sand	ML, SM	A-4, A-2-4	0	0-3	90-100	75-100	50-100	30-90	0-34	NP-15
	21-31	Sandy clay loam, fine sandy loam, sandy loam, silt loam	ML, SM	A-4, A-2-4	0	0-3	95-100	75-100	50-100	30-90	0-41	NP-15
	31-36	Loam, sandy loam, fine sandy loam, silt loam	SM, ML	A-2-4, A-4	0	0-3	95-100	75-100	45-100	20-90	0-41	NP-15
	36-80	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
89B:												
Trenary---------	0-2	Silt loam, very fine sandy loam	SM	A-4	0	0-5	90-100	85-100	75-100	40-90	0-33	NP-6
	2-6	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-100	75-100	40-90	0-26	NP-6
	6-12	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-100	75-100	40-90	0-33	NP-6
	12-17	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-100	75-100	40-90	0-29	NP-6
	17-26	Sandy loam, loamy sand	SM	A-4	0-4	0-8	90-100	85-95	40-70	10-40	0-20	NP-3
	26-37	Sandy clay loam, fine sandy loam	SC, SM	A-6, A-4	0-4	0-8	90-100	85-95	55-90	30-50	25-37	3-17
	37-80	Sandy loam, gravelly fine sandy loam	SM	A-4	0-4	0-20	70-95	65-90	40-80	20-50	15-24	NP-6
90:												
Chippeny--------	0-20	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	20-28	Silty clay loam, very gravelly sandy loam	CL, SM, CL-ML	A-6, A-4, A-2-4	0	0-15	100	40-100	25-100	5-95	16-50	2-29
	28-80	Bedrock	---	---	---	---	---	---	---	---	---	---
91:												
Cathro----------	0-34	Muck	PT	A-8	0	0	100	100	---	---	---	---
	34-80	Gravelly fine sandy loam	ML, SM	A-2-4, A-4	0	0-10	60-100	55-100	30-100	15-90	0-28	NP-9
Lupton----------	0-4	Peat	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Muck	PT	A-8	0	0	100	100	90-100	40-100	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
93A:												
Ruse----------	0-7	Mucky silt loam, mucky loam	SM, ML	A-4, A-2-4	0	0-15	85-100	75-100	45-100	20-90	0-30	NP-11
	7-11	Sandy loam, fine sandy loam	ML, SM	A-2-4, A-4	0	0-15	85-100	75-100	45-85	20-50	0-30	NP-11
	11-15	Sandy loam, fine sandy loam	SM, ML	A-2-4, A-4	0	0-15	85-100	75-100	45-85	20-50	0-30	NP-11
	15-80	Bedrock	---	---	---	---	---	---	---	---	---	---
Ensign----------	0-1	Slightly decomposed plant material	PT	A-2-4, A-4	0	0	100	100	---	---	---	NP
	1-5	Gravelly sandy loam, silt loam, fine sandy loam	SM, ML	A-2-4, A-4	0	0-30	60-100	50-100	30-85	10-80	20-35	1-7
	5-8	Fine sandy loam, gravelly sandy loam, silt loam			0	0-30	55-100	50-100	30-85	10-80	16-30	1-7
	8-15	Fine sandy loam, gravelly sandy loam, silt loam			0	0-30	60-100	50-100	30-85	10-80	16-26	1-7
	15-80	Unweathered bedrock	---	---	0	0-30	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
98B:												
Guardlake-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-2	Fine sandy loam, loam, very fine sandy loam	SM, CL-ML, ML	A-2-4, A-4	0	0-7	80-100	75-100	40-100	20-90	0-25	NP-7
	2-4	Fine sandy loam, very fine sandy loam, loam	SM, CL-ML, ML	A-2-4, A-4	0	0-7	80-100	75-100	40-100	20-90	0-25	NP-7
	4-13	Sandy loam, fine sandy loam, very fine sandy loam	SM, CL-ML, ML	A-2-4, A-4	0	0-7	80-100	75-100	40-95	20-75	0-25	NP-7
	13-80	Very gravelly sand, very cobbly sand, very gravelly coarse sand	GP	A-1-b, A-1	0-5	10-30	45-70	35-65	15-45	0-10	0-20	NP-4
98D:												
Guardlake-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-2	Fine sandy loam, loam, very fine sandy loam	SM, CL-ML, ML	A-2-4, A-4	0	0-7	80-100	75-100	40-100	20-90	0-25	NP-7
	2-4	Fine sandy loam, very fine sandy loam, loam	SM, CL-ML, ML	A-2-4, A-4	0	0-7	80-100	75-100	40-100	20-90	0-25	NP-7
	4-13	Sandy loam, fine sandy loam, very fine sandy loam	SM, CL-ML, ML	A-2-4, A-4	0	0-7	80-100	75-100	40-95	20-75	0-25	NP-7
	13-80	Very gravelly sand, very cobbly sand, very gravelly coarse sand	GP	A-1-b, A-1	0-5	10-30	45-70	35-65	15-45	0-10	0-20	NP-4

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
98E:												
Guardlake-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-2	Fine sandy loam, loam, very fine sandy loam	SM, CL-ML, ML	A-2-4, A-4	0	0-7	80-100	75-100	40-100	20-90	0-25	NP-7
	2-4	Fine sandy loam, very fine sandy loam, loam	SM, CL-ML, ML	A-2-4, A-4	0	0-7	80-100	75-100	40-100	20-90	0-25	NP-7
	4-13	Sandy loam, fine sandy loam, very fine sandy loam	SM, CL-ML, ML	A-2-4, A-4	0	0-7	80-100	75-100	40-95	20-75	0-25	NP-7
	13-80	Very gravelly sand, very cobbly sand, very gravelly coarse sand	GP	A-1-b, A-1	0-5	10-30	45-70	35-65	15-45	0-10	0-20	NP-4
116F:												
Udipsamments----	0-80	Sand	---	---	0	0	85-100	75-100	30-75	0-25	0-14	NP
Udorthents------	0-80	Variable	---	---	---	---	---	---	---	---	---	---
119.												
Landfill												

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
120A:												
Charlevoix------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-5	Silt loam	ML	A-4	0	0-7	90-100	85-100	75-100	55-90	0-20	NP-3
	5-7	Silt loam	ML	A-4	0	0-7	90-100	85-100	75-100	55-90	0-20	NP-3
	7-12	Silt loam, fine sandy loam	SM, ML	A-4	0	0-7	90-100	85-100	55-90	30-90	0-20	NP-3
	12-16	Fine sandy loam, loamy fine sand	SM	A-2-4, A-4	0	2-8	90-100	85-100	55-90	30-50	16-22	NP-5
	16-27	Cobbly fine sandy loam, cobbly loamy fine sand	SM	A-4, A-2-4	0	8-15	80-90	75-85	50-80	30-50	20-26	NP-8
	27-80	Cobbly fine sandy loam, gravelly fine sandy loam	SM	A-4	0-5	8-15	75-90	70-85	45-80	25-50	17-25	NP-7
Ensley----------	0-5	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	5-7	Mucky loam, mucky fine sandy loam, mucky sandy loam	SM, ML	A-4, A-2-4	0-4	0-7	90-100	85-100	50-95	25-75	0-20	NP-4
	7-19	Fine sandy loam, sandy loam, loam	ML, SM	A-4, A-2-4	0-4	0-7	90-100	85-100	50-95	25-75	0-20	NP-3
	19-80	Gravelly fine sandy loam	SM	A-4	0-4	0-15	65-85	60-80	45-75	25-50	16-26	NP-8

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
122A:												
Wormet----------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-5	Fine sandy loam, very fine sandy loam	SM, SC-SM	A-4	0	0	95-100	95-100	65-85	35-55	0-25	NP-7
	5-7	Fine sandy loam, very fine sandy loam	SM, SC-SM	A-4	0	0	95-100	95-100	65-85	35-55	0-25	NP-7
	7-12	Fine sandy loam, very fine sandy loam	SM, SC-SM	A-4	0	0	95-100	95-100	65-85	35-55	0-25	NP-7
	12-23	Sand	SM	A-3	0	0	95-100	90-100	50-70	10-25	0-14	NP
	23-80	Sand	SM	A-3	0	0	90-100	85-100	45-65	5-15	0-14	NP
123:												
Minocqua--------	0-5	Muck	PT	A-8	0	0	100	100	---	---	---	---
	5-7	Mucky fine sandy loam, very fine sandy loam	SM, ML	A-2-4, A-4	0	0	100	95-100	50-100	30-90	0-21	NP-4
	7-18	Fine sandy loam, very fine sandy loam	SM, ML	A-2-4, A-4	0	0	100	95-100	50-100	30-90	0-21	NP-4
	18-23	Very fine sandy loam, fine sandy loam	SM, ML	A-2-4, A-4	0	0	100	95-100	50-100	30-90	0-21	NP-4
	23-80	Gravelly sand, sand	SP, SP-SM	A-2-4, A-3	0	0	60-100	55-95	30-60	0-10	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
125B:												
Stutts----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Sandy loam, fine sandy loam	SM	A-4, A-2-4	0	0	95-100	90-100	55-85	25-50	0-18	NP-1
	2-7	Sandy loam, fine sandy loam	SM	A-4, A-2-4	0	0	95-100	90-100	55-85	25-50	0-18	NP-1
	7-9	Sandy loam, fine sandy loam	SM	A-4	0	0	95-100	90-100	55-85	25-50	0-20	NP-3
	9-13	Fine sandy loam, sandy loam	SM	A-4	0	0	96-100	91-100	69-82	36-45	16-29	1-6
	13-19	Sandy loam, fine sandy loam	SM	A-4	0	0	96-100	90-100	70-82	37-47	0-29	NP-6
	19-80	Sand	SP-SM	A-2-4	0	0	92-100	84-100	64-80	5-11	0-19	NP
Kalkaska--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-6	Loamy sand	SM	A-2-4	0	0-5	95-100	85-100	50-75	15-30	0-14	NP-4
	6-8	Loamy sand	SM	A-2-4	0	0-5	95-100	85-100	50-75	15-30	0-14	NP-4
	8-12	Loamy sand, sand	SP-SM, SM	A-2-4, A-3	0	0-5	95-100	85-100	50-75	5-30	0-14	NP-4
	12-23	Sand	SM	A-2-4, A-3	0	0-5	95-100	85-100	50-70	5-15	0-14	NP
	23-38	Sand	SM	A-2-4, A-3	0	0-5	95-100	85-100	50-70	5-15	0-14	NP
	38-80	Sand	SM	A-3, A-2-4	0	0-5	95-100	75-100	50-70	5-15	0-14	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
125D:												
Stutts----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Sandy loam, fine sandy loam	SM	A-4, A-2-4	0	0	95-100	90-100	55-85	25-50	0-18	NP-1
	2-7	Sandy loam, fine sandy loam	SM	A-4, A-2-4	0	0	95-100	90-100	55-85	25-50	0-18	NP-1
	7-9	Sandy loam, fine sandy loam	SM	A-4	0	0	95-100	90-100	55-85	25-50	0-20	NP-3
	9-13	Fine sandy loam, sandy loam	SM	A-4	0	0	96-100	91-100	69-82	36-45	16-29	1-6
	13-19	Sandy loam, fine sandy loam	SM	A-4	0	0	96-100	90-100	70-82	37-47	0-29	NP-6
	19-80	Sand	SP-SM	A-2-4	0	0	92-100	84-100	64-80	5-11	0-19	NP
Kalkaska--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-6	Loamy sand	SM	A-2-4	0	0-5	95-100	85-100	50-75	15-30	0-14	NP-4
	6-8	Loamy sand	SM	A-2-4	0	0-5	95-100	85-100	50-75	15-30	0-14	NP-4
	8-12	Loamy sand, sand	SP-SM, SM	A-2-4, A-3	0	0-5	95-100	85-100	50-75	5-30	0-14	NP-4
	12-23	Sand	SM	A-2-4, A-3	0	0-5	95-100	85-100	50-70	5-15	0-14	NP
	23-38	Sand	SM	A-2-4, A-3	0	0-5	95-100	85-100	50-70	5-15	0-14	NP
	38-80	Sand	SM	A-3, A-2-4	0	0-5	95-100	75-100	50-70	5-15	0-14	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
125E:												
Stutts----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Sandy loam, fine sandy loam	SM	A-4, A-2-4	0	0	95-100	90-100	55-85	25-50	0-18	NP-1
	2-7	Sandy loam, fine sandy loam	SM	A-4, A-2-4	0	0	95-100	90-100	55-85	25-50	0-18	NP-1
	7-9	Sandy loam, fine sandy loam	SM	A-4	0	0	95-100	90-100	55-85	25-50	0-20	NP-3
	9-13	Fine sandy loam, sandy loam	SM	A-4	0	0	96-100	91-100	69-82	36-45	16-29	1-6
	13-19	Sandy loam, fine sandy loam	SM	A-4	0	0	96-100	90-100	70-82	37-47	0-29	NP-6
	19-80	Sand	SP-SM	A-2-4	0	0	92-100	84-100	64-80	5-11	0-19	NP
Kalkaska--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-6	Loamy sand	SM	A-2-4	0	0-5	95-100	85-100	50-75	15-30	0-14	NP-4
	6-8	Loamy sand	SM	A-2-4	0	0-5	95-100	85-100	50-75	15-30	0-14	NP-4
	8-12	Loamy sand, sand	SP-SM, SM	A-2-4, A-3	0	0-5	95-100	85-100	50-75	5-30	0-14	NP-4
	12-23	Sand	SM	A-2-4, A-3	0	0-5	95-100	85-100	50-70	5-15	0-14	NP
	23-38	Sand	SM	A-2-4, A-3	0	0-5	95-100	85-100	50-70	5-15	0-14	NP
	38-80	Sand	SM	A-3, A-2-4	0	0-5	95-100	75-100	50-70	5-15	0-14	NP
131B:												
Furlong---------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Sand	SP-SM, SP	A-3	0	0	95-100	95-100	45-70	0-10	0-29	NP-2
	2-5	Loamy sand, sand	SM, SP, SP-SM	A-3, A-2-4	0	0	95-100	95-100	45-75	0-30	0-26	NP-6
	5-7	Loamy sand, sand	SP-SM, SM, SP	A-3, A-2-4	0	0	90-100	85-100	40-75	0-30	0-33	NP-6
	7-19	Loamy sand, sand	SP, SP-SM, SM	A-3, A-2-4	0	0	90-100	85-100	40-75	0-30	0-29	NP-6
	19-22	Sand	SP, SP-SM	A-3	0	0	90-100	85-100	40-75	0-10	0-19	NP-2
	22-80	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
131B:												
Shingleton------	0-1	Loamy sand, sand	SM	A-2-4, A-3	0	0-5	92-100	85-100	47-75	7-30	0-19	NP
	1-7	Loamy sand, sand	SM	A-2-4, A-3	0	0-5	92-100	85-100	47-75	7-30	0-19	NP
	7-8	Sand, loamy sand	SM	A-2-4, A-3	0	0-5	92-100	85-100	47-75	7-30	0-19	NP
	8-11	Sand, loamy sand	SM	A-2-4, A-3	0	0-5	92-100	85-100	47-75	7-30	0-19	NP
	11-80	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
141A:												
Halfaday--------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-9	Loamy sand, sand	SM, SP	A-2-4, A-3	0	0	90-100	85-100	40-75	0-30	0-0	NP
	9-10	Loamy sand, sand	SM, SP	A-2-4, A-3	0	0	90-100	85-100	40-75	0-30	0-0	NP
	10-35	Sand	SP	A-3	0	0	90-100	85-100	40-70	0-10	0-0	NP
	35-80	Sand	SP	A-3	0	0	90-100	85-100	40-70	0-10	0-0	NP
145B:												
Noseum----------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-5	Fine sandy loam	SM, SC-SM	A-4	0	0	95-100	95-100	65-85	35-55	0-25	NP-7
	5-7	Fine sandy loam	SM, SC-SM	A-4	0	0	95-100	95-100	65-85	35-55	0-25	NP-7
	7-19	Fine sandy loam, sandy loam	SM, SC-SM	A-4	0	0	95-100	95-100	65-85	35-55	0-25	NP-7
	19-27	Sand	SM	A-3	0	0	95-100	90-100	50-70	5-15	0-14	NP
	27-80	Sand	SM	A-3	0	0	90-100	85-100	45-65	5-15	0-14	NP
155B:												
Karlin----------	0-3	Loamy fine sand	SM, ML	A-4, A-2-4	0	0	95-100	85-100	55-85	20-55	0-19	NP-4
	3-7	Loamy fine sand	SM, ML	A-4, A-2-4	0	0	95-100	85-100	55-85	20-55	0-19	NP-4
	7-17	Loamy fine sand	ML, SM	A-2-4, A-4	0	0	95-100	85-100	55-85	20-55	0-19	NP-4
	17-31	Sand	SM	A-2-4	0	0	95-100	85-100	45-75	5-30	0-0	NP
	31-80	Sand	SM	A-2-4, A-3	0	0	95-100	85-100	45-70	5-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
160B:												
Paquin----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-12	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	0	95-100	90-100	50-80	5-30	0-14	NP
	12-14	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	50-80	5-30	0-14	NP
	14-17	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	0	95-100	90-100	50-80	5-30	0-14	NP
	17-27	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	0	95-100	90-100	50-80	5-30	0-14	NP
	27-34	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	50-80	5-30	0-14	NP
	34-80	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	50-80	5-30	0-14	NP
Finch----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-11	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
	11-42	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
	42-80	Fine sand, sand	SP-SM, SP	A-2-4, A-3	0	0	95-100	90-100	50-95	0-35	0-0	NP
218. Pits, quarry												
219B:												
Cublake---------	0-3	Sand, fine sand	SM	A-2-4	0	0	95-100	85-100	50-80	5-35	0-0	NP
	3-4	Sand, fine sand	SM	A-2-4	0	0	95-100	85-100	50-80	5-35	0-0	NP
	4-23	Sand, fine sand	SM	A-2-4	0	0	95-100	85-100	50-80	5-35	0-0	NP
	23-32	Sand, fine sand	SM	A-2-4	0	0	95-100	85-100	50-80	5-35	0-0	NP
	32-48	Sand, fine sand	SM	A-2-4	0	0	95-100	85-100	50-80	5-35	0-0	NP
	48-80	Stratified fine sand to loamy fine sand to fine sandy loam to silty clay loam	SM, ML, CL-ML, CL	A-2-4, A-6, A-4	0	0	100	95-100	50-100	5-95	0-45	NP-22
222:												
Histosols-------	0-51	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	51-80	Variable	---	---	---	---	---	---	---	---	---	---
Aquents---------	0-80	Variable	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
225B:												
Cusino----------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-8	Loamy sand	SM	A-2-4	0	0-8	90-100	85-100	40-75	10-30	0-25	NP-4
	8-10	Loamy sand, sand, gravelly sand	SM, SP-SM, SP	A-2-4, A-3	0	0-8	75-100	70-100	35-75	0-30	0-33	NP-6
	10-17	Gravelly sand, sand, loamy sand	SM, SP-SM, SP	A-3, A-2-4	0	0-8	75-100	70-100	35-75	0-30	0-22	NP-2
	17-80	Stratified gravelly sand to sand, sand	SP, SP-SM	A-3	0	0-15	60-100	55-100	30-70	0-10	0-19	NP-2
248B:												
Escanaba--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-3	Loamy fine sand, fine sand, loamy sand, sand	SM, SP-SM, SP	A-4, A-3, A-2-4	0	0-8	90-100	85-100	40-95	0-50	0-30	NP-3
	3-6	Sand, fine sand, loamy fine sand	SP, SP-SM, SM	A-2-4, A-3, A-4	0	0-8	90-100	85-100	40-95	0-50	0-23	NP-3
	6-26	Sand, loamy sand, fine sand, loamy fine sand	SP, SP-SM, SM	A-2-4, A-3, A-4	0	0-8	90-100	85-100	40-95	0-50	0-25	NP-3
	26-35	Loamy sand, fine sandy loam, loamy fine sand	SM	A-2-4, A-4	0	0-8	90-100	85-100	40-95	10-50	17-27	3-10
	35-42	Sandy loam, fine sandy loam	SM	A-2-4, A-4	0	0-8	90-100	85-100	50-85	25-50	20-30	2-12
	42-80	Gravelly fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-25	70-100	65-95	45-65	25-45	17-26	3-9

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
248B:												
Greylock--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-6	Sandy loam, fine sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	0-31	NP-4
	6-7	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	0-25	NP-4
	7-9	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	16-33	1-6
	9-19	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	16-33	1-6
	19-26	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	17-27	3-10
	26-34	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	17-27	3-10
	34-80	Sandy loam, gravelly fine sandy loam	SM	A-2-4, A-4	0	0-15	85-100	80-95	45-85	20-50	17-26	3-9
249A:												
Iosco----------	0-6	Highly decomposed plant material	PT		0	0	100	100	---	---	---	---
	6-11	Sand	SM, SP-SM	A-1, A-2, A-3	0	0-5	90-100	75-100	40-95	5-35	0-14	NP
	11-27	Fine sand, sand, loamy sand	SM, SP-SM	A-1, A-2, A-3, A-4	0	0-5	90-100	75-100	35-80	5-45	0-14	NP
	27-38	Loam, sandy loam, gravelly sandy loam	SM, ML, SC, CL	A-1, A-2, A-4	0	0-10	85-100	60-100	35-95	20-75	15-25	NP-10
	38-80	Fine sandy loam, loam, gravelly fine sandy loam	CL, SM, SC, ML	A-1, A-2, A-4	0	0-10	85-100	60-100	35-95	15-75	20-30	NP-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
267A:												
Finch----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-11	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
	11-42	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-70	0-10	0-0	NP
	42-80	Fine sand, sand	SP-SM, SP	A-2-4, A-3	0	0	95-100	90-100	50-95	0-35	0-0	NP
287B:												
Hiawatha--------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-6	Sandy loam, fine sandy loam	PT	A-8	0	0	100	90-100	50-75	5-25	0-0	NP
	6-80	Sand, fine sand	SM, SP-SM	A-3, A-2-4	0	0	100	90-100	50-75	5-25	0-0	NP
289B:												
Wallace---------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-10	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	5-30	0-14	NP
	10-11	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
	11-21	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
	21-26	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
	26-59	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
	59-80	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
289D:												
Wallace---------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-10	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	5-30	0-14	NP
	10-11	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
	11-21	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
	21-26	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
	26-59	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
	59-80	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
289E:												
Wallace---------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-10	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	5-30	0-14	NP
	10-11	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
	11-21	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
	21-26	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
	26-59	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
	59-80	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100	45-70	0-30	0-14	NP
294B:												
Munising, calcareous substratum-----	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-3	Fine sandy loam	SM	A-4	0-3	0-8	90-100	85-95	55-85	30-50	17-26	2-6
	3-6	Fine sandy loam	SM	A-4	0-3	0-8	90-100	85-95	55-85	30-50	20-33	2-6
	6-23	Fine sandy loam	SM	A-4	0-3	0-8	90-100	85-95	55-85	30-50	17-29	2-6
	23-38	Loamy sand, fine sandy loam	SM	A-4, A-2-4	0-3	0-8	90-100	85-95	35-85	10-50	0-21	NP-4
	38-50	Fine sandy loam, loamy sand	SM	A-2-4, A-4	0-3	0-8	90-100	85-95	35-85	10-50	16-25	2-7
	50-63	Gravelly fine sandy loam	SC-SM	A-4, A-2-4	0-3	0-8	70-90	65-85	45-75	25-45	18-27	4-10
	63-80	Gravelly fine sandy loam	SC-SM	A-2-4, A-4	0-3	0-8	70-90	65-85	45-75	25-45	18-27	4-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
294B:												
Yalmer, calcareous substratum-----	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	1-2	Loamy sand	SM	A-2-4	0	0-3	81-97	76-97	57-80	19-32	0-18	NP
	2-5	Loamy sand, sand	SM, SP-SM	A-2-4, A-3	0	0-3	81-97	76-97	55-78	4-13	0-0	NP
	5-16	Sand, loamy sand	SM	A-2-4	0	0-3	79-96	74-96	54-78	14-26	0-0	NP
	16-28	Loamy sand, sand, gravelly loamy sand, gravelly sand	SM	A-2-4	0	0-2	68-97	62-97	46-79	16-32	0-0	NP
	28-36	Loamy sand, fine sandy loam	SM	A-2-4	0-2	0-6	88-99	85-99	65-84	23-35	0-20	NP-3
	36-62	Loamy sand, fine sandy loam	SM	A-4, A-2-4	0-2	0-6	88-99	85-99	75-94	32-44	15-22	NP-5
	62-80	Loamy sand, gravelly fine sandy loam	SM	A-2-4, A-4	0-2	0-6	66-82	59-79	52-76	23-37	18-25	1-7
Frohling, calcareous substratum-----	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-5	Fine sandy loam, loamy fine sand	SM	A-4, A-2-4	0	0-8	85-100	80-100	50-95	30-50	0-25	NP-4
	5-24	Fine sandy loam	SM	A-4	0	0-8	85-100	80-100	50-95	30-50	0-27	NP-4
	24-73	Fine sandy loam, loamy fine sand	SM	A-2-4, A-4	0	0-8	85-100	80-100	50-95	30-50	15-25	1-7
	73-80	Gravelly fine sandy loam	SM	A-2-4, A-4	0-3	3-15	55-95	50-90	45-70	25-45	18-25	2-7

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
295E:												
Dillingham------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-8	Loamy sand, loamy fine sand	SM	A-2-4	0	0-7	95-100	85-100	40-80	10-40	0-20	NP
	8-11	Loamy fine sand, loamy sand	SP-SM, SM	A-2-4, A-4	0	0-7	95-100	85-100	40-80	10-40	0-20	NP
	11-21	Loamy fine sand, loamy sand	SP-SM, SM	A-2-4, A-4	0	0-7	95-100	85-100	40-80	10-40	0-20	NP
	21-31	Fine sand, loamy fine sand, sand, loamy sand	SP-SM, SM	A-4, A-2-4	0	0-7	95-100	85-100	40-80	10-40	0-20	NP-5
	31-80	Sand, stratified sand to loamy sand	SP-SM, SM	A-4, A-2-4	0	0-7	95-100	85-100	40-80	10-40	0-20	NP
Kalkaska--------	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
355B:												
Springlake------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-7	Loamy coarse sand, loamy sand	SM, SP-SM	A-1-b, A-2-4	0	0	95-100	75-100	35-75	5-30	0-17	NP
	7-9	Loamy coarse sand, loamy sand, sand	SP-SM, SM	A-1-b, A-2-4, A-3	0	0	95-100	75-100	35-75	5-30	0-17	NP
	9-14	Loamy coarse sand, loamy sand, sand, gravelly loamy coarse sand	SM, SP-SM	A-1-b, A-2-4, A-3	0	0	95-100	75-100	35-75	5-30	0-16	NP
	14-23	Loamy coarse sand, loamy sand, sand, gravelly loamy coarse sand	SM, SP-SM	A-1-b, A-2-4, A-3	0	0	95-100	75-100	35-75	5-30	0-16	NP
	23-26	Gravelly coarse sand, gravelly sand, sand	SP, SW, SP-SM	A-1-b, A-2-4, A-3	0	0	70-90	50-90	30-60	0-10	0-0	NP
	26-80	Gravelly coarse sand, gravelly sand, sand	SP-SM, SP, SW	A-1-b, A-2-4, A-3	0	0	70-90	50-90	30-60	0-10	0-0	NP
366B:												
Gilchrist-------	0-3	Moderately decomposed plant material	PT		0	0	100	100	---	---	---	---
	3-7	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	50-70	5-30	0-0	NP
	7-9	Loamy sand	SM	A-2-4	0	0-5	95-100	85-100	50-70	5-30	0-14	NP-4
	9-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	50-70	5-30	0-0	NP
	26-80	Extremely gravelly sandy loam	GM, SM	A-2-4, A-1	0	0-8	75-95	20-60	15-50	5-50	0-20	NP-6

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
367B:												
Cozy----------	0-5	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	5-6	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-5	90-100	85-100	50-85	25-55	0-21	NP-4
	6-10	Sandy loam, fine sandy loam	SM	A-2-4, A-4	0	0-5	90-100	85-100	50-85	25-55	0-21	NP-4
	10-14	Sandy loam, fine sandy loam	SM	A-2-4, A-4	0	0-5	90-100	85-100	50-85	25-55	0-21	NP-4
	14-80	Very gravelly sandy loam, very gravelly fine sandy loam	SM	A-2-4	0-3	0-10	50-70	40-65	25-45	10-30	0-21	NP-4
400B:												
Amadon----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-8	Sandy loam, fine sandy loam	ML	A-4	0	0-5	95-100	90-100	55-90	25-65	0-20	NP-4
	8-10	Sandy loam, fine sandy loam	SM, ML	A-4	0	0-5	95-100	90-100	55-90	25-65	0-20	NP-4
	10-15	Sandy loam, fine sandy loam	SM, ML	A-4	0	0-5	95-100	90-100	55-85	25-65	0-20	NP-4
	15-80	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
401A:												
Ingalls---------	0-4	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	4-5	Sand	SP-SM, SP	A-3	0	0	90-100	85-100	45-70	0-10	0-31	NP-4
	5-14	Fine sand, loamy sand, sand	SP, SP-SM	A-3, A-2-4	0	0	90-100	85-100	40-95	0-35	0-26	NP-6
	14-16	Loamy sand, fine sand, sand	SP, SP-SM	A-3, A-2-4	0	0	90-100	85-100	40-95	0-35	0-33	NP-6
	16-35	Fine sand, sand, loamy sand	SP, SM, SP-SM	A-3, A-2-4	0	0	90-100	85-100	40-95	0-35	0-26	NP-6
	35-80	Stratified silt loam, stratified loamy fine sand, stratified loamy very fine sand, stratified silt	ML, SM	A-4	0	0	100	100	60-100	35-95	0-27	NP-10
490B:												
Pelkie, occasionally flooded--------	0-6	Fine sandy loam	ML, SM	A-2-4, A-4	0	0	100	90-100	55-90	25-65	0-28	NP-9
	6-38	Sand, fine sand, loamy fine sand	SM	A-2-4	0	0	100	90-100	45-85	5-50	0-0	NP
	38-80	Fine sand, sand	SM	A-2-4	0	0	100	90-100	45-80	5-35	0-0	NP
Arnheim, frequently flooded--------	0-6	Silt loam, mucky silt loam	ML, SM	A-4	0	0	100	100	85-100	40-90	12-20	NP-4
	6-32	Very fine sandy loam, silt loam	ML	A-4	0	0	100	100	85-100	50-90	18-28	3-9
	32-80	Stratified fine sand to fine sandy loam to silt loam	ML, SM	A-4	0	0	100	100	70-100	40-90	15-20	1-4

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
491B:												
Neconish--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-8	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
	8-21	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
	21-32	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
	32-80	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
Deford, rarely flooded--------	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40-95	5-35	0-0	NP
Wainola---------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-12	Fine sand	SM	A-2-4	0	0	100	100	50-80	5-35	---	NP
	12-18	Fine sand	SM	A-2-4	0	0	100	100	50-80	5-35	---	NP
	18-27	Fine sand	SM	A-2-4	0	0	100	100	50-80	5-35	---	NP
	27-41	Fine sand	SM	A-2-4	0	0	100	100	50-80	5-35	---	NP
	41-80	Very fine sand, fine sand	SM	A-2-4, A-4	0	0	100	100	50-90	20-50	---	NP
492D:												
Wurtsmith-------	0-2	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
	2-7	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
	7-15	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
	15-26	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
	26-80	Sand	SW-SM	A-3	0	0	100	95-100	50-70	5-15	0-0	NP
Duck----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-6	Fine sandy loam, sandy loam	ML, SM	A-4	0	0	100	95-100	70-95	47-65	0-16	NP
	6-15	Sand, loamy sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	15-80	Sand	SP	A-3	0	0	90-100	85-100	40-70	0-10	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
492D:												
Rubicon---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
493A:												
Deford----------	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40-95	5-35	0-0	NP
Meehan----------	0-3	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	3-7	Loamy sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	7-11	Sand, loamy sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	11-23	Sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	23-80	Sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
Seney----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-5	Fine sandy loam, sandy loam	ML, SM	A-4	0	0	100	95-100	70-95	47-65	0-16	NP
	5-14	Sand, loamy sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	14-80	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
498B:												
Bursaw----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-49	Stratified extremely gravelly coarse sand to sand	GP	A-1	0	0-10	35-65	10-50	5-35	0-10	0-14	NP
	49-80	Gravelly sandy loam	SM	A-4	1-5	4-10	85-100	60-85	35-75	10-60	15-25	NP-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
498B:												
Beavertail------	0-8	Muck	PT	A-8	0	0	100	100	---	---	---	NP
	8-16	Very gravelly sandy loam, very gravelly fine sandy loam	SM	A-2-4	0-3	0-10	50-70	40-65	25-45	10-30	0-21	NP-4
	16-29	Very gravelly sandy loam, very gravelly fine sandy loam	SM	A-2-4	0-3	0-10	50-70	40-65	25-45	10-30	0-21	NP-4
	29-80	Very gravelly sandy loam, very gravelly fine sandy loam	SM	A-2-4	0-3	0-10	50-70	40-65	25-45	10-30	0-21	NP-4
505B:												
Graveraet-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	ML, SM	A-4	0	0-15	85-100	85-100	55-85	30-50	15-25	NP-7
	4-7	Fine sandy loam	ML, SM	A-4	0	0-15	85-100	85-100	55-85	30-50	15-25	NP-7
	7-10	Fine sandy loam, sandy loam	SM, ML	A-4	0	0-15	85-100	85-100	55-85	30-60	15-25	NP-7
	10-17	Fine sandy loam, sandy loam	SM, ML	A-4	0	0-15	85-100	85-100	55-85	30-60	15-25	NP-7
	17-33	Loamy sand, loam, sandy clay loam	ML, SM	A-2-4, A-4	0	0-15	85-100	85-100	50-80	25-55	15-25	NP-7
	33-48	Sandy clay loam, loamy sand, fine sandy loam	CL-ML, CL	A-2-4, A-4	0	0-15	85-100	85-100	60-80	25-55	25-35	4-15
	48-68	Sandy clay loam, fine sandy loam	CL, CL-ML	A-4	0	0-15	85-100	85-100	60-80	25-55	25-35	4-15
	68-80	Sandy loam	SM, ML	A-2-4, A-4	0	0-15	85-95	85-95	35-80	15-50	15-25	NP-7

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
505D:												
Graveraet-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	ML, SM	A-4	0	0-15	85-100	85-100	55-85	30-50	15-25	NP-7
	4-7	Fine sandy loam	ML, SM	A-4	0	0-15	85-100	85-100	55-85	30-50	15-25	NP-7
	7-10	Fine sandy loam, sandy loam	SM, ML	A-4	0	0-15	85-100	85-100	55-85	30-60	15-25	NP-7
	10-17	Fine sandy loam, sandy loam	SM, ML	A-4	0	0-15	85-100	85-100	55-85	30-60	15-25	NP-7
	17-33	Loamy sand, loam, sandy clay loam	ML, SM	A-2-4, A-4	0	0-15	85-100	85-100	50-80	25-55	15-25	NP-7
	33-48	Sandy clay loam, loamy sand, fine sandy loam	CL-ML, CL	A-2-4, A-4	0	0-15	85-100	85-100	60-80	25-55	25-35	4-15
	48-68	Sandy clay loam, fine sandy loam	CL, CL-ML	A-4	0	0-15	85-100	85-100	60-80	25-55	25-35	4-15
	68-80	Sandy loam	SM, ML	A-2-4, A-4	0	0-15	85-95	85-95	35-80	15-50	15-25	NP-7
512A:												
Growton---------	0-6	Fine sandy loam	SM	A-4	0	0-8	90-100	85-95	55-85	30-50	15-20	NP-3
	6-18	Fine sandy loam, loam	ML, SM	A-4	0	0-8	90-100	85-95	55-90	30-70	15-25	NP-7
	18-25	Fine sandy loam, loam, sandy loam	ML, SM	A-4, A-2-4	0	0-8	90-100	85-95	50-90	25-70	22-28	3-9
	25-80	Gravelly fine sandy loam	SM	A-4	0	3-10	65-80	60-75	45-70	25-50	17-25	1-7
514B:												
Kalkaska, burned	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
514D:												
Kalkaska, burned	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
514E:												
Kalkaska, burned	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
515B:												
Vilas----------	0-3	Loamy sand	SM, SP-SM	A-2-4	0	0-5	95-100	85-100	45-70	10-30	0-14	NP
	3-5	Sand, loamy sand	SM, SP, SP-SM	A-2-4, A-3	0	0-5	95-100	85-100	45-70	0-30	0-14	NP
	5-9	Loamy sand	SM, SP, SP-SM	A-2-4, A-3	0	0-5	95-100	85-100	45-70	0-30	0-14	NP
	9-20	Sand, loamy sand	SM, SP, SP-SM	A-2-4, A-3	0	0-5	95-100	85-100	45-70	0-30	0-14	NP
	20-80	Sand, coarse sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0-5	95-100	85-100	25-70	0-15	0-14	NP
516A:												
Deford, drained	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40-95	5-35	0-0	NP
Meehan, drained	0-3	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	3-7	Loamy sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	7-11	Sand, loamy sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	11-23	Sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	23-80	Sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
517B:												
Mancelona-------	0-2	Moderately decomposed plant material	PT	A-1-b, A-2	0	0	100	100	---	---	---	---
	2-7	Sand, loamy sand	SM, SP-SM	A-1-b, A-2, A-3	0	0-10	90-100	85-100	45-75	10-45	0-0	NP
	7-19	Loamy sand	SC-SM, SM	A-4, A-2-4	0	0-10	90-100	85-100	45-75	10-45	0-0	NP
	19-26	Loamy coarse sand, gravelly loamy sand, sandy loam	SC-SM, SM	A-2-4, A-4	0	0-15	85-100	65-95	35-70	10-40	0-0	NP
	26-80	Very gravelly sand, gravelly sand	SW, SP, GW, GP	A-1	0	0-15	40-70	30-65	15-45	0-15	0-0	NP
517D:												
Mancelona-------	0-2	Moderately decomposed plant material	PT	A-1-b, A-2	0	0	100	100	---	---	---	---
	2-7	Sand, loamy sand	SM, SP-SM	A-1-b, A-2, A-3	0	0-10	90-100	85-100	45-75	10-45	0-0	NP
	7-19	Loamy sand	SC-SM, SM	A-4, A-2-4	0	0-10	90-100	85-100	45-75	10-45	0-0	NP
	19-26	Loamy coarse sand, gravelly loamy sand, sandy loam	SC-SM, SM	A-2-4, A-4	0	0-15	85-100	65-95	35-70	10-40	0-0	NP
	26-80	Very gravelly sand, gravelly sand	SW, SP, GW, GP	A-1	0	0-15	40-70	30-65	15-45	0-15	0-0	NP
518A:												
Deford, frequently flooded--------	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40-95	5-35	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
518A:												
Seney, frequently flooded--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-5	Fine sandy loam, sandy loam	ML, SM	A-4	0	0	100	95-100	70-95	47-65	0-16	NP
	5-14	Sand, loamy sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	14-80	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
519B:												
Trenary---------	0-2	Silt loam, very fine sandy loam	SM	A-4	0	0-5	90-100	85-100	75-100	40-90	0-33	NP-6
	2-6	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-100	75-100	40-90	0-26	NP-6
	6-12	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-100	75-100	40-90	0-33	NP-6
	12-17	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-100	75-100	40-90	0-29	NP-6
	17-26	Sandy loam, loamy sand	SM	A-4	0-4	0-8	90-100	85-95	40-70	10-40	0-20	NP-3
	26-37	Sandy clay loam, fine sandy loam	SC, SM	A-6, A-4	0-4	0-8	90-100	85-95	55-90	30-50	25-37	3-17
	37-80	Sandy loam, gravelly fine sandy loam	SM	A-4	0-4	0-20	70-95	65-90	40-80	20-50	15-24	NP-6
520B:												
Rubicon---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
520B:												
Sultz----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	89-95	8-35	0-29	NP
	2-6	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	89-95	8-35	0-24	NP
	6-18	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	18-51	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-5	100	95-100	50-95	5-35	0-0	NP
	51-80	Silt loam, loamy very fine sand, sand	ML, SM	A-4, A-2-4	0	0	100	95-100	40-95	10-80	0-27	NP-10
520D:												
Rubicon---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
Sultz----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	89-95	8-35	0-29	NP
	2-6	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	89-95	8-35	0-24	NP
	6-18	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	75-95	10-35	0-0	NP
	18-51	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-5	100	95-100	50-95	5-35	0-0	NP
	51-80	Silt loam, loamy very fine sand, sand	ML, SM	A-4, A-2-4	0	0	100	95-100	40-95	10-80	0-27	NP-10
525B:												
Neconish--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-8	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
	8-21	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
	21-32	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP
	32-80	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
525B:												
Kinross---------	0-3	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	3-14	Fine sand	SP-SM, SM	A-2-4, A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	14-22	Fine sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	22-35	Fine sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	35-80	Fine sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
Wainola---------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-12	Fine sand	SM	A-2-4	0	0	100	100	50-80	5-35	---	NP
	12-18	Fine sand	SM	A-2-4	0	0	100	100	50-80	5-35	---	NP
	18-27	Fine sand	SM	A-2-4	0	0	100	100	50-80	5-35	---	NP
	27-41	Fine sand	SM	A-2-4	0	0	100	100	50-80	5-35	---	NP
	41-80	Very fine sand, fine sand	SM	A-2-4, A-4	0	0	100	100	50-90	20-50	---	NP
526B:												
Graveraet-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	ML, SM	A-4	0	0-15	85-100	85-100	55-85	30-50	15-25	NP-7
	4-7	Fine sandy loam	ML, SM	A-4	0	0-15	85-100	85-100	55-85	30-50	15-25	NP-7
	7-10	Fine sandy loam, sandy loam	SM, ML	A-4	0	0-15	85-100	85-100	55-85	30-60	15-25	NP-7
	10-17	Fine sandy loam, sandy loam	SM, ML	A-4	0	0-15	85-100	85-100	55-85	30-60	15-25	NP-7
	17-33	Loamy sand, loam, sandy clay loam	ML, SM	A-2-4, A-4	0	0-15	85-100	85-100	50-80	25-55	15-25	NP-7
	33-48	Sandy clay loam, loamy sand, fine sandy loam	CL-ML, CL	A-2-4, A-4	0	0-15	85-100	85-100	60-80	25-55	25-35	4-15
	48-68	Sandy clay loam, fine sandy loam	CL, CL-ML	A-4	0	0-15	85-100	85-100	60-80	25-55	25-35	4-15
	68-80	Sandy loam	SM, ML	A-2-4, A-4	0	0-15	85-95	85-95	35-80	15-50	15-25	NP-7

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
526B:												
Angelica--------	0-2	Muck	PT	A-8	0	0	100	100	---	---	---	---
	2-6	Loam, sandy loam, silt loam	SM, CL-ML, ML	A-4, A-2-4	0	0	95-100	90-100	55-100	25-90	15-28	NP-9
	6-10	Silt loam, sandy loam, loam	ML, SM, CL-ML	A-2-4, A-4, A-6	0	0-5	90-100	85-100	50-100	25-90	15-34	NP-14
	10-17	Sandy loam, silt loam	SC-SM, CL, SC	A-2-4, A-4, A-6	0	0-5	95-100	75-100	45-95	25-75	26-34	8-14
	17-80	Sandy loam, loam	SC-SM, CL, SC	A-2-4, A-4, A-6	0	0-5	95-100	75-100	45-95	25-75	26-34	8-14
527B:												
Islandlake------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	2-8	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	8-9	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	9-41	Sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-70	5-15	0-15	NP
	41-80	Fine sand, loamy fine sand, sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
McMillan--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-75	30-50	0-25	NP-7
	4-6	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	6-9	Very fine sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	9-16	Very fine sandy loam, fine sandy loam	SM, SC-SM	A-4, A-2-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	16-22	Loamy fine sand, loamy sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	22-32	Sand, fine sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	32-80	Stratified sand to loamy sand	SC-SM, SM, SP-SM	A-2, A-3, A-1	0	0-7	90-100	85-100	35-75	5-30	0-14	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
527D:												
Islandlake------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	2-8	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	8-9	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	9-41	Sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-70	5-15	0-15	NP
	41-80	Fine sand, loamy fine sand, sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
McMillan--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-75	30-50	0-25	NP-7
	4-6	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	6-9	Very fine sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	9-16	Very fine sandy loam, fine sandy loam	SM, SC-SM	A-4, A-2-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	16-22	Loamy fine sand, loamy sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	22-32	Sand, fine sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	32-80	Stratified sand to loamy sand	SC-SM, SM, SP-SM	A-2, A-3, A-1	0	0-7	90-100	85-100	35-75	5-30	0-14	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
527E:												
Islandlake------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	2-8	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	8-9	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	9-41	Sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-70	5-15	0-15	NP
	41-80	Fine sand, loamy fine sand, sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
McMillan--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-75	30-50	0-25	NP-7
	4-6	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	6-9	Very fine sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	9-16	Very fine sandy loam, fine sandy loam	SM, SC-SM	A-4, A-2-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	16-22	Loamy fine sand, loamy sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	22-32	Sand, fine sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	32-80	Stratified sand to loamy sand	SC-SM, SM, SP-SM	A-2, A-3, A-1	0	0-7	90-100	85-100	35-75	5-30	0-14	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
531B:												
Greylock--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-6	Sandy loam, fine sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	0-31	NP-4
	6-7	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	0-25	NP-4
	7-9	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	16-33	1-6
	9-19	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	16-33	1-6
	19-26	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	17-27	3-10
	26-34	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	17-27	3-10
	34-80	Sandy loam, gravelly fine sandy loam	SM	A-2-4, A-4	0	0-15	85-100	80-95	45-85	20-50	17-26	3-9

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
531D:												
Greylock--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-6	Sandy loam, fine sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	0-31	NP-4
	6-7	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	0-25	NP-4
	7-9	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	16-33	1-6
	9-19	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0-15	90-100	85-95	50-85	25-50	16-33	1-6
	19-26	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	17-27	3-10
	26-34	Sandy loam, fine sandy loam, loamy sand	SM	A-2-4, A-4	0	0-15	90-100	85-95	40-85	10-50	17-27	3-10
	34-80	Sandy loam, gravelly fine sandy loam	SM	A-2-4, A-4	0	0-15	85-100	80-95	45-85	20-50	17-26	3-9
532:												
Angelica--------	0-2	Muck	PT	A-8	0	0	100	100	---	---	---	---
	2-6	Loam, sandy loam, silt loam	SM, CL-ML, ML	A-4, A-2-4	0	0	95-100	90-100	55-100	25-90	15-28	NP-9
	6-10	Silt loam, sandy loam, loam	ML, SM, CL-ML	A-2-4, A-4, A-6	0	0-5	90-100	85-100	50-100	25-90	15-34	NP-14
	10-17	Sandy loam, silt loam	SC-SM, CL, SC	A-2-4, A-4, A-6	0	0-5	95-100	75-100	45-95	25-75	26-34	8-14
	17-80	Sandy loam, loam	SC-SM, CL, SC	A-2-4, A-4, A-6	0	0-5	95-100	75-100	45-95	25-75	26-34	8-14

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
534:												
Pickford--------	0-6	Silty clay loam	CL	A-4, A-6	0	0	100	100	90-100	70-90	25-40	7-15
	6-9	Silty clay loam	CL	A-4, A-6	0	0	100	100	90-100	70-90	25-40	7-15
	9-13	Silty clay loam, silty clay	CH, CL	A-7	0	0	100	100	95-100	85-95	40-70	20-40
	13-24	Clay	CL, CH	A-7	0	0	100	100	95-100	85-95	45-70	25-40
	24-80	Clay	CL, CH	A-7	0	0	100	100	95-100	85-95	45-70	25-40
535B:												
Trenary---------	0-2	Fine sandy loam	SM	A-4	0-4	0-8	90-100	85-95	55-85	30-50	0-20	NP-4
	2-6	Fine sandy loam	ML, SM	A-4	0-4	0-8	90-100	85-95	55-90	30-85	0-18	NP-2
	6-12	Fine sandy loam	ML, SM	A-4	0-4	0-8	90-100	85-95	55-90	30-85	0-18	NP-2
	12-17	Fine sandy loam	ML, SM	A-4	0-4	0-8	90-100	85-95	55-90	30-65	0-22	NP-5
	17-26	Sandy loam, loamy sand	SM	A-4	0-4	0-8	90-100	85-95	40-70	10-40	0-20	NP-3
	26-37	Sandy clay loam, fine sandy loam	SC, SM	A-6, A-4	0-4	0-8	90-100	85-95	55-90	30-50	25-37	3-17
	37-80	Sandy loam, gravelly fine sandy loam	SM	A-4	0-4	0-20	70-95	65-90	40-80	20-50	15-24	NP-6
535D:												
Trenary---------	0-2	Fine sandy loam	SM	A-4	0-4	0-8	90-100	85-95	55-85	30-50	0-20	NP-4
	2-6	Fine sandy loam	ML, SM	A-4	0-4	0-8	90-100	85-95	55-90	30-85	0-18	NP-2
	6-12	Fine sandy loam	ML, SM	A-4	0-4	0-8	90-100	85-95	55-90	30-85	0-18	NP-2
	12-17	Fine sandy loam	ML, SM	A-4	0-4	0-8	90-100	85-95	55-90	30-65	0-22	NP-5
	17-26	Sandy loam, loamy sand	SM	A-4	0-4	0-8	90-100	85-95	40-70	10-40	0-20	NP-3
	26-37	Sandy clay loam, fine sandy loam	SC, SM	A-6, A-4	0-4	0-8	90-100	85-95	55-90	30-50	25-37	3-17
	37-80	Sandy loam, gravelly fine sandy loam	SM	A-4	0-4	0-20	70-95	65-90	40-80	20-50	15-24	NP-6

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
536B:												
Menominee, sandy substratum-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-8	Sand	SM	A-2-4, A-3	0	0-3	95-100	95-100	50-70	5-15	0-0	NP
	8-11	Sand	SM	A-2-4, A-3	0	0-3	95-100	95-100	50-70	5-15	0-0	NP
	11-34	Sand	SM	A-2-4, A-3	0	0-3	95-100	95-100	50-70	5-15	0-0	NP
	34-46	Clay loam, fine sandy loam, fine sandy loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	65-95	35-75	25-35	4-15
	46-62	Loam, fine sandy loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	75-90	55-70	25-35	4-15
	62-80	Stratified sand to loamy sand	SM	A-3, A-2-4	0	0-3	95-100	95-100	50-70	5-30	0-0	NP
537B:												
McMillan--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-75	30-50	0-25	NP-7
	4-6	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	6-9	Very fine sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	9-16	Very fine sandy loam, fine sandy loam	SM, SC-SM	A-4, A-2-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	16-22	Loamy fine sand, loamy sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	22-32	Sand, fine sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	32-80	Stratified sand to loamy sand	SC-SM, SM, SP-SM	A-2, A-3, A-1	0	0-7	90-100	85-100	35-75	5-30	0-14	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
537D:												
McMillan--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-75	30-50	0-25	NP-7
	4-6	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	6-9	Very fine sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	9-16	Very fine sandy loam, fine sandy loam	SM, SC-SM	A-4, A-2-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	16-22	Loamy fine sand, loamy sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	22-32	Sand, fine sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	32-80	Stratified sand to loamy sand	SC-SM, SM, SP-SM	A-2, A-3, A-1	0	0-7	90-100	85-100	35-75	5-30	0-14	NP
538B:												
Menominee, sandy substratum-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-8	Sand	SM	A-2-4, A-3	0	0-3	95-100	95-100	50-70	5-15	0-0	NP
	8-11	Sand	SM	A-2-4, A-3	0	0-3	95-100	95-100	50-70	5-15	0-0	NP
	11-34	Sand	SM	A-2-4, A-3	0	0-3	95-100	95-100	50-70	5-15	0-0	NP
	34-46	Clay loam, fine sandy loam, fine sandy loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	65-95	35-75	25-35	4-15
	46-62	Loam, fine sandy loam	CL, CL-ML	A-4	0	0-5	95-100	90-100	75-90	55-70	25-35	4-15
	62-80	Stratified sand to loamy sand	SM	A-3, A-2-4	0	0-3	95-100	95-100	50-70	5-30	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
538B:												
McMillan--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-75	30-50	0-25	NP-7
	4-6	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	6-9	Very fine sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	9-16	Very fine sandy loam, fine sandy loam	SM, SC-SM	A-4, A-2-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	16-22	Loamy fine sand, loamy sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	22-32	Sand, fine sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	32-80	Stratified sand to loamy sand	SC-SM, SM, SP-SM	A-2, A-3, A-1	0	0-7	90-100	85-100	35-75	5-30	0-14	NP
540D:												
Deford----------	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	0-0	NP
	4-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40-95	5-35	0-0	NP
Rubicon---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
Au Gres---------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-7	Sand	SM	A-3, A-2-4	0	0	95-100	90-100	45-70	5-15	0-0	NP
	7-17	Sand	SM	A-2-4, A-3	0	0	95-100	90-100	45-70	5-15	0-0	NP
	17-28	Sand	SP-SM, SM	A-2-4, A-3	0	0	90-100	85-100	40-70	5-15	0-0	NP
	28-80	Sand	SP-SM, SM	A-2-4, A-3	0	0	90-100	85-100	40-70	5-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
541D:												
Kinross---------	0-3	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	3-14	Sand	SP-SM, SM	A-2-4, A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	14-22	Sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	22-35	Sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	35-80	Sand, fine sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
Au Gres---------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-7	Sand	SM	A-3, A-2-4	0	0	95-100	90-100	45-70	5-15	0-0	NP
	7-17	Sand	SM	A-2-4, A-3	0	0	95-100	90-100	45-70	5-15	0-0	NP
	17-28	Sand	SP-SM, SM	A-2-4, A-3	0	0	90-100	85-100	40-70	5-15	0-0	NP
	28-80	Sand	SP-SM, SM	A-2-4, A-3	0	0	90-100	85-100	40-70	5-15	0-0	NP
Rubicon---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
543B:												
Auger, sandy substratum-----	0-7	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	90-100	70-90	0-20	NP-4
	7-10	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	85-100	50-90	0-20	NP-4
	10-17	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	85-100	50-90	0-20	NP-4
	17-60	Stratified silt loam to very fine sandy loam	ML	A-4	0	0	95-100	90-100	85-100	50-90	0-25	NP-4
	60-80	Stratified loamy fine sand to fine sand	SM	A-2-4	0	0	95-100	90-100	45-85	20-35	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
546B:												
Kalkaska, deep water table----	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
546D:												
Kalkaska, deep water table----	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
547B:												
Rubicon, very deep water table----------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
547D:												
Rubicon, very deep water table----------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
548B:												
McMillan--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-4	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-75	30-50	0-25	NP-7
	4-6	Fine sandy loam	SM, SC-SM	A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	6-9	Very fine sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	9-16	Very fine sandy loam, fine sandy loam	SM, SC-SM	A-4, A-2-4	0	0-7	95-100	85-100	55-80	30-55	0-25	NP-7
	16-22	Loamy fine sand, loamy sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	22-32	Sand, fine sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0-7	90-100	85-100	50-80	5-45	0-14	NP
	32-80	Stratified sand to loamy sand	SC-SM, SM, SP-SM	A-2, A-3, A-1	0	0-7	90-100	85-100	35-75	5-30	0-14	NP
Trenary---------	0-2	Fine sandy loam	SM	A-4	0-4	0-8	90-100	85-95	55-85	30-50	0-20	NP-4
	2-6	Fine sandy loam	ML, SM	A-4	0-4	0-8	90-100	85-95	55-90	30-85	0-18	NP-2
	6-12	Fine sandy loam	ML, SM	A-4	0-4	0-8	90-100	85-95	55-90	30-85	0-18	NP-2
	12-17	Fine sandy loam	ML, SM	A-4	0-4	0-8	90-100	85-95	55-90	30-65	0-22	NP-5
	17-26	Sandy loam, loamy sand	SM	A-4	0-4	0-8	90-100	85-95	40-70	10-40	0-20	NP-3
	26-37	Sandy clay loam, fine sandy loam	SC, SM	A-6, A-4	0-4	0-8	90-100	85-95	55-90	30-50	25-37	3-17
	37-80	Sandy loam, gravelly fine sandy loam	SM	A-4	0-4	0-20	70-95	65-90	40-80	20-50	15-24	NP-6
549B:												
Islandlake------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	2-8	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	8-9	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	9-41	Sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-70	5-15	0-15	NP
	41-80	Fine sand, loamy fine sand, sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
549D:												
Islandlake------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	2-8	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	8-9	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	9-41	Sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-70	5-15	0-15	NP
	41-80	Fine sand, loamy fine sand, sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
549E:												
Islandlake------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	2-8	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	8-9	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	9-41	Sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-70	5-15	0-15	NP
	41-80	Fine sand, loamy fine sand, sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
551B:												
Kalkaska, very deep water table----------	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
551D:												
Kalkaska, very deep water table----------	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
553:												
Carbondale------	0-38	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	38-80	Mucky peat	PT	A-8	0	0	100	100	90-100	40-100	---	NP
Loxley----------	0-8	Peat	PT	A-8	0	0	100	100	100	90-100	---	NP
	8-80	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	NP
554B:												
Duck----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-6	Fine sandy loam, sandy loam	ML, SM	A-4	0	0	100	95-100	70-95	47-65	0-16	NP
	6-15	Sand, loamy sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	5-15	0-0	NP
	15-80	Sand	SP	A-3	0	0	90-100	85-100	40-70	0-10	0-0	NP
Halfaday--------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-9	Loamy sand, sand	SM, SP	A-2-4, A-3	0	0	90-100	85-100	40-75	0-30	0-0	NP
	9-10	Loamy sand, sand	SM, SP	A-2-4, A-3	0	0	90-100	85-100	40-75	0-30	0-0	NP
	10-35	Sand	SP	A-3	0	0	90-100	85-100	40-70	0-10	0-0	NP
	35-80	Sand	SP	A-3	0	0	90-100	85-100	40-70	0-10	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
555D:												
Hiawatha--------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-6	Sandy loam, fine sandy loam	PT	A-8	0	0	100	90-100	50-75	5-25	0-0	NP
	6-80	Sand, fine sand	SM, SP-SM	A-3, A-2-4	0	0	100	90-100	50-75	5-25	0-0	NP
Deer Park-------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-3	Sand	SP-SM, SP	A-3	0	0	100	100	50-70	0-15	0-0	NP
	3-10	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	0	100	100	50-95	0-35	0-0	NP
	10-21	Sand, fine sand	SP-SM, SP	A-3, A-2-4	0	0	100	100	50-95	0-35	0-0	NP
	21-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	0	100	100	50-95	0-35	0-0	NP
Rubicon---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
557B:												
Kalkaska, very deep water table, burned--	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
557D:												
Kalkaska, very deep water table, burned--	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
558B:												
Islandlake, burned---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	2-8	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	8-9	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	9-41	Sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-70	5-15	0-15	NP
	41-80	Fine sand, loamy fine sand, sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
558D:												
Islandlake, burned---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	2-8	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	8-9	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	9-41	Sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-70	5-15	0-15	NP
	41-80	Fine sand, loamy fine sand, sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
559B:												
Kalkaska, deep water table, burned---------	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	6-8	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40-70	5-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
560B:												
Islandlake, very deep water table----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	1-2	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	2-8	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	8-9	Sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
	9-41	Sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-70	5-15	0-15	NP
	41-80	Fine sand, loamy fine sand, sand, loamy sand	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-75	5-30	0-19	NP-4
561A:												
Croswell--------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-6	Sand	SM, SP-SM	A-2-4, A-3	0	0-5	90-100	85-100	40-70	5-15	0-0	NP
	6-15	Sand	SM, SP-SM	A-2-4, A-3	0	0-5	90-100	85-100	40-70	5-15	0-0	NP
	15-22	Sand	SM, SP-SM	A-2-4, A-3	0	0-5	90-100	85-100	40-70	5-15	0-0	NP
	22-80	Sand	SM, SP-SM	A-2-4, A-3	0	0-5	90-100	85-100	40-70	5-15	0-0	NP
562B:												
Croswell--------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-6	Sand	SM, SP-SM	A-2-4, A-3	0	0-5	90-100	85-100	40-70	5-15	0-0	NP
	6-15	Sand	SM, SP-SM	A-2-4, A-3	0	0-5	90-100	85-100	40-70	5-15	0-0	NP
	15-22	Sand	SM, SP-SM	A-2-4, A-3	0	0-5	90-100	85-100	40-70	5-15	0-0	NP
	22-80	Sand	SM, SP-SM	A-2-4, A-3	0	0-5	90-100	85-100	40-70	5-15	0-0	NP
Kinross---------	0-3	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	3-14	Sand	SP-SM, SM	A-2-4, A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	14-22	Sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	22-35	Sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	35-80	Sand, fine sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
563B:												
Halfaday--------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	NP
	2-9	Loamy sand, sand	SM, SP	A-2-4, A-3	0	0	90-100	85-100	40-75	0-30	0-0	NP
	9-10	Loamy sand, sand	SM, SP	A-2-4, A-3	0	0	90-100	85-100	40-75	0-30	0-0	NP
	10-35	Sand	SP	A-3	0	0	90-100	85-100	40-70	0-10	0-0	NP
	35-80	Sand	SP	A-3	0	0	90-100	85-100	40-70	0-10	0-0	NP
Kinross---------	0-3	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	3-14	Sand	SP-SM, SM	A-2-4, A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	14-22	Sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	22-35	Sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
	35-80	Sand, fine sand	SP-SM	A-3	0	0	100	90-100	50-80	5-30	0-14	NP
564A:												
Ingalls---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-3	Highly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	3-10	Fine sand, loamy sand, sand	SP, SP-SM	A-3, A-2-4	0	0	90-100	85-100	40-95	0-35	0-26	NP-6
	10-17	Sand, loamy sand	SP-SM, SP	A-3	0	0	90-100	85-100	45-70	0-10	0-31	NP-4
	17-23	Loamy sand, fine sand, sand	SP, SP-SM	A-3, A-2-4	0	0	90-100	85-100	40-95	0-35	0-33	NP-6
	23-43	Fine sand, sand, loamy fine sand	SP, SM, SP-SM	A-3, A-2-4	0	0	90-100	85-100	40-95	0-35	0-26	NP-6
	43-80	Stratified loamy fine sand to fine sandy loam to silt loam	ML, SM	A-4	0	0	100	100	60-100	35-95	0-27	NP-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
565B:												
Rubicon, deep water table----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
565D:												
Rubicon, deep water table----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	NP
	2-5	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	5-30	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	30-38	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
	38-80	Sand	SM, SP, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	40-70	0-15	0-0	NP
W. Water												

Table 16.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
10B:											
Amadon----------	0-2	---	---	0.60-2.00	---	---	---	---	2	5	56
	2-8	2-10	1.30-1.60	0.60-2.00	0.11-0.22	0.0-2.9	.43	.43			
	8-10	2-10	1.45-1.60	0.60-2.00	0.13-0.24	0.0-2.9	.28	.28			
	10-15	2-10	1.45-1.60	0.60-2.00	0.09-0.19	0.0-2.9	.24	.24			
	15-80	---	---	0.06-0.60	---	---	---	---			
Rock outcrop----	0-60	---	---	0.00-0.06	---	---	---	---	-	---	---
11B:											
Kalkaska--------	0-1	---	---	6.00-20.00	---	---	---	---	5	2	134
	1-6	3-8	1.35-1.65	6.00-20.00	0.10-0.12	0.0-2.9	.17	.17			
	6-8	3-8	1.30-1.60	6.00-20.00	0.10-0.12	0.0-2.9	.17	.17			
	8-12	1-8	1.30-1.70	6.00-20.00	0.06-0.11	0.0-2.9	.17	.17			
	12-23	0-5	1.30-1.70	6.00-20.00	0.03-0.08	0.0-2.9	.15	.15			
	23-38	0-5	1.30-1.70	6.00-20.00	0.03-0.08	0.0-2.9	.15	.15			
	38-80	0-5	1.55-1.75	6.00-20.00	0.02-0.06	0.0-2.9	.15	.15			
12B:											
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
12D:											
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
12E:											
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
12F:											
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
13B:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
13D:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
13E:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
13F:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
16A:											
Paquin----------	0-2	---	---	6.00-20.00	---	---	---	---	2	1	220
	2-12	0-5	1.35-1.45	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	12-14	0-5	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	14-17	0-5	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	17-27	0-3	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	27-34	0-1	1.45-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	34-80	0-1	1.50-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
17A:											
Au Gres---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-17	0-10	1.40-1.65	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	17-28	0-10	1.40-1.65	6.00-20.00	0.06-0.07	0.0-2.9	.15	.15			
	28-80	0-10	1.50-1.65	6.00-20.00	0.05-0.06	0.0-2.9	.15	.15			
18:											
Kinross---------	0-3	---	0.10-0.35	6.00-20.00	0.35-0.45	---	---	---	3	2	134
	3-14	0-5	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	14-22	0-5	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	22-35	0-3	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	35-80	0-1	1.40-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15			
19A:											
Au Gres---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-17	0-10	1.40-1.65	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	17-28	0-10	1.40-1.65	6.00-20.00	0.06-0.07	0.0-2.9	.15	.15			
	28-80	0-10	1.50-1.65	6.00-20.00	0.05-0.06	0.0-2.9	.15	.15			
Deford----------	0-4	---	0.20-0.30	0.60-6.00	0.35-0.45	0.0-0.0	---	---	5	2	134
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
20E:											
Rousseau--------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	250
	1-4	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	4-20	0-10	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	20-33	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	33-66	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	66-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Neconish--------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	250
	1-8	0-5	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	8-21	0-5	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	21-32	0-5	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	32-80	0-5	1.50-1.60	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Finch----------	0-1	---	---	6.00-20.00	---	---	---	---	2	1	220
	1-11	0-3	1.20-1.57	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	11-42	0-3	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	42-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
21B:											
Garlic----------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-9	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	9-11	0-10	1.30-1.60	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	11-20	0-10	1.30-1.60	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-29	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	29-80	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
21D:											
Garlic----------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-9	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	9-11	0-10	1.30-1.60	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	11-20	0-10	1.30-1.60	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-29	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	29-80	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
21E:											
Garlic----------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-9	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	9-11	0-10	1.30-1.60	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	11-20	0-10	1.30-1.60	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-29	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	29-80	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
22E:											
Rousseau--------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	250
	1-4	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	4-20	0-10	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	20-33	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	33-66	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	66-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Neconish--------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	250
	1-8	0-5	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	8-21	0-5	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	21-32	0-5	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	32-80	0-5	1.50-1.60	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Deford----------	0-4	---	0.20-0.30	0.60-6.00	0.35-0.45	0.0-0.0	---	---	5	2	134
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
24B:											
Rousseau--------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	250
	1-4	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	4-20	0-10	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	20-33	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	33-66	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	66-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
24D:											
Rousseau--------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	250
	1-4	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	4-20	0-10	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	20-33	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	33-66	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	66-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
24E:											
Rousseau--------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	250
	1-4	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	4-20	0-10	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	20-33	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	33-66	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	66-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
25B:											
Proper----------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	250
	2-11	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	11-16	0-10	1.30-1.55	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	16-21	0-10	1.40-1.65	0.60-6.00	0.05-0.08	0.0-2.9	.15	.15			
	21-32	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	32-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
26A:											
Spot----------	0-2	---	0.05-0.15	0.20-6.00	0.55-0.65	0.0-2.9	---	---	2	7	38
	2-8	0-10	1.45-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	8-10	0-10	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	10-18	0-10	1.45-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	18-80	0-10	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Finch----------	0-1	---	---	6.00-20.00	---	---	---	---	2	1	220
	1-11	0-3	1.20-1.57	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	11-42	0-3	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	42-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
27A:											
Hendrie---------	0-4	---	---	0.20-0.60	0.45-0.55	---	---	---	5	5	56
	4-7	2-10	1.10-1.60	0.20-0.60	0.20-0.24	0.0-2.9	.37	.37			
	7-16	2-10	1.35-1.70	0.20-0.60	0.11-0.22	0.0-2.9	.37	.37			
	16-80	2-10	1.45-1.70	0.20-0.60	0.20-0.22	0.0-2.9	.37	.37			
Annanias--------	0-4	---	---	0.60-2.00	---	---	---	---	5	5	56
	4-7	1-5	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.37	.37			
	7-10	0-5	1.35-1.70	0.60-2.00	0.11-0.22	0.0-2.9	.37	.37			
	10-15	0-5	1.35-1.70	0.60-2.00	0.11-0.22	0.0-2.9	.37	.37			
	15-26	0-5	1.35-1.70	0.60-2.00	0.11-0.15	0.0-2.9	.24	.24			
	26-47	0-5	1.40-1.70	0.60-2.00	0.11-0.18	0.0-2.9	.24	.24			
	47-80	0-5	1.40-1.70	0.60-2.00	0.20-0.22	0.0-2.9	.37	.37			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
30:											
Hendrie---------	0-4	---	---	0.20-0.60	0.45-0.55	---	---	---	5	5	56
	4-7	2-10	1.10-1.60	0.20-0.60	0.20-0.24	0.0-2.9	.37	.37			
	7-16	2-10	1.35-1.70	0.20-0.60	0.11-0.22	0.0-2.9	.37	.37			
	16-80	2-10	1.45-1.70	0.20-0.60	0.20-0.22	0.0-2.9	.37	.37			
33. Pits, sand and gravel											
34B:											
Liminga---------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	250
	1-7	0-5	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-9	0-5	1.30-1.60	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	9-22	0-5	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	22-31	0-5	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	31-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
34E:											
Liminga---------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	250
	1-7	0-5	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-9	0-5	1.30-1.60	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	9-22	0-5	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	22-31	0-5	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	31-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
36:											
Carbondale------	0-38	---	0.20-0.30	0.20-6.00	0.35-0.45	0.0-2.9	---	---	5	8	0
	38-80	---	0.10-0.20	0.60-6.00	0.45-0.55	0.0-2.9	---	---			
Lupton----------	0-4	---	0.05-0.15	6.00-20.00	0.55-0.65	0.0-2.9	---	---	5	8	0
	4-80	---	0.20-0.30	0.20-6.00	0.35-0.45	0.0-2.9	---	---			
Tawas----------	0-26	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	8	0
	26-80	0-3	1.20-1.57	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
37:											
Dawson----------	0-10	---	0.05-0.15	6.00-20.00	0.55-0.65	0.0-2.9	---	---	4	8	0
	10-38	---	0.13-0.23	0.20-6.00	0.35-0.45	0.0-2.9	---	---			
	38-80	0-10	1.50-1.70	6.00-20.00	0.03-0.10	0.0-2.9	.15	.15			
Greenwood-------	0-65	---	0.10-0.17	0.60-6.00	0.45-0.55	0.0-2.9	---	---	5	8	0
	65-80	---	0.13-0.23	0.60-6.00	0.35-0.45	0.0-2.9	---	---			
Loxley----------	0-8	---	0.05-0.15	6.00-20.00	0.55-0.65	0.0-2.9	---	---	5	8	0
	8-80	---	0.13-0.23	0.20-6.00	0.35-0.45	0.0-2.9	---	---			
43:											
Ensley----------	0-5	---	---	0.60-2.00	---	---	---	---	4	2	134
	5-7	7-20	1.10-1.35	0.60-2.00	0.19-0.21	0.0-2.9	.32	.37			
	7-19	7-20	1.50-1.85	0.60-2.00	0.10-0.19	0.0-2.9	.20	.28			
	19-80	5-15	1.70-1.80	0.60-2.00	0.10-0.19	0.0-2.9	.15	.28			
56B:											
Shuberts--------	0-6	---	---	6.00-20.00	---	---	---	---	5	1	250
	6-25	0-15	1.50-1.70	6.00-20.00	0.03-0.10	0.0-2.9	.15	.15			
	25-80	---	---	0.06-0.60	---	---	---	---			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
56B:											
Wurtsmith-------	0-2	0-5	1.35-1.60	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-7	0-5	1.35-1.60	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-15	0-5	1.50-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	15-26	0-5	1.50-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	26-80	0-5	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Meehan----------	0-3	---	---	6.00-20.00	---	---	---	---	5	1	220
	3-7	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	7-11	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	11-23	0-10	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
	23-80	0-10	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
61A:											
Ingalls---------	0-1	---	---	6.00-20.00	0.35-0.45	---	---	---	5	2	134
	1-3	---	---	6.00-20.00	0.35-0.45	---	---	---			
	3-10	0-10	1.20-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	10-17	0-8	1.20-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	17-23	0-10	1.35-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	23-43	0-10	1.35-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	43-80	0-15	1.65-1.80	0.20-0.60	0.14-0.22	0.0-2.9	.43	.43			
Caffey----------	0-6	---	---	5.98-20.00	---	---	---	---	5	2	134
	6-12	0-15	1.40-1.55	5.98-20.00	0.06-0.09	0.0-2.9	.15	.15			
	12-21	0-15	1.40-1.55	5.98-20.00	0.06-0.09	0.0-2.9	.15	.15			
	21-35	0-27	1.50-1.80	0.60-2.00	0.17-0.22	0.0-2.9	.43	.43			
	35-80	0-40	1.50-1.80	0.20-2.00	0.17-0.22	0.0-2.9	.43	.43			
62B:											
McMillan--------	0-1	---	---	0.60-2.00	---	---	---	---	4	3	86
	1-4	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	4-6	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	6-9	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	9-16	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	16-22	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	22-32	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	32-80	1-7	1.55-1.75	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
Greylock--------	0-1	---	---	0.60-2.00	---	---	---	---	5	3	86
	1-6	2-8	1.30-1.60	0.60-2.00	0.12-0.18	0.0-2.9	.20	.24			
	6-7	2-8	1.30-1.65	0.60-2.00	0.09-0.18	0.0-2.9	.20	.24			
	7-9	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	9-19	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	19-26	4-10	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	26-34	6-15	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	34-80	6-14	1.60-1.80	0.60-2.00	0.11-0.16	0.0-2.9	.17	.28			
62D:											
McMillan--------	0-1	---	---	0.60-2.00	---	---	---	---	4	3	86
	1-4	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	4-6	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	6-9	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	9-16	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	16-22	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	22-32	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	32-80	1-7	1.55-1.75	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
62D:											
Greylock--------	0-1	---	---	0.60-2.00	---	---	---	---	5	3	86
	1-6	2-8	1.30-1.60	0.60-2.00	0.12-0.18	0.0-2.9	.20	.24			
	6-7	2-8	1.30-1.65	0.60-2.00	0.09-0.18	0.0-2.9	.20	.24			
	7-9	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	9-19	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	19-26	4-10	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	26-34	6-15	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	34-80	6-14	1.60-1.80	0.60-2.00	0.11-0.16	0.0-2.9	.17	.28			
62E:											
Greylock--------	0-1	---	---	0.60-2.00	---	---	---	---	5	3	86
	1-6	2-8	1.30-1.60	0.60-2.00	0.12-0.18	0.0-2.9	.20	.24			
	6-7	2-8	1.30-1.65	0.60-2.00	0.09-0.18	0.0-2.9	.20	.24			
	7-9	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	9-19	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	19-26	4-10	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	26-34	6-15	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	34-80	6-14	1.60-1.80	0.60-2.00	0.11-0.16	0.0-2.9	.17	.28			
McMillan--------	0-1	---	---	0.60-2.00	---	---	---	---	4	3	86
	1-4	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	4-6	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	6-9	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	9-16	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	16-22	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	22-32	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	32-80	1-7	1.55-1.75	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
63:											
Deford----------	0-4	---	0.20-0.30	0.60-6.00	0.35-0.45	0.0-0.0	---	---	5	2	134
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
65:											
Ausable---------	0-9	---	0.13-0.23	0.20-6.00	0.35-0.45	---	---	---	5	8	0
	9-35	0-5	1.35-1.50	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	35-45	---	0.13-0.23	0.20-6.00	0.32-0.45	---	---	---			
	45-80	0-5	1.40-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
Deford----------	0-4	---	0.20-0.30	0.60-6.00	0.35-0.45	0.0-0.0	---	---	5	8	0
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
Tawas----------	0-26	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	8	0
	26-80	0-3	1.20-1.57	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
66:											
Markey----------	0-3	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	4	2	134
	3-20	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	20-80	0-5	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
67B:											
Pelkie----------	0-4	0-7	1.35-1.60	6.00-20.00	0.10-0.22	0.0-2.9	.17	.17	5	2	134
	4-38	0-10	1.50-1.70	6.00-20.00	0.06-0.11	0.0-2.9	.17	.17			
	38-80	0-10	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Deford----------	0-4	---	0.20-0.30	0.60-6.00	0.35-0.45	0.0-0.0	---	---	5	8	0
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Erosion factors K	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
68F:											
Deer Park-------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-3	0-5	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	3-10	0-10	1.20-1.50	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	10-21	0-10	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	21-80	0-10	1.50-1.60	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
69:											
Ruse----------	0-7	0-20	1.10-1.60	0.60-6.00	0.14-0.24	0.0-2.9	.28	.28	2	5	56
	7-11	0-20	1.50-1.80	0.60-6.00	0.11-0.15	0.0-2.9	.24	.24			
	11-15	0-20	1.50-1.80	0.60-6.00	0.10-0.14	0.0-2.9	.24	.24			
	15-80	---	---	0.00-0.60	---	---	---	---			
70F:											
Deer Park-------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-3	0-5	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	3-10	0-10	1.20-1.50	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	10-21	0-10	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	21-80	0-10	1.50-1.60	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Deford----------	0-4	---	0.20-0.30	0.60-6.00	0.35-0.45	0.0-0.0	---	---	5	2	134
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
Tawas----------	0-26	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	8	0
	26-80	0-3	1.20-1.57	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
72:											
Spot----------	0-2	---	0.05-0.15	6.00-20.00	0.55-0.65	0.0-2.9	---	---	2	7	38
	2-8	0-10	1.45-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	8-10	0-10	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	10-18	0-10	1.45-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	18-80	0-10	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
73B:											
Graveraet-------	0-1	---	---	0.60-2.00	---	---	---	---	3	3	86
	1-4	2-10	1.40-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.24	.24			
	4-7	2-10	1.40-1.70	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	7-10	2-10	1.60-1.85	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	10-17	2-10	1.60-1.85	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	17-33	2-10	1.80-2.10	0.00-0.06	0.03-0.06	0.0-2.9	.17	.17			
	33-48	8-20	1.65-1.75	0.20-2.00	0.12-0.14	0.0-2.9	.37	.37			
	48-68	15-25	1.65-1.75	0.20-2.00	0.12-0.14	0.0-2.9	.37	.37			
	68-80	5-12	1.65-1.80	0.20-2.00	0.08-0.10	0.0-2.9	.28	.28			
Gulliver--------	0-4	2-10	1.30-1.60	0.60-2.00	0.17-0.22	0.0-2.9	.32	.32	5	5	56
	4-9	2-10	1.30-1.60	0.60-2.00	0.17-0.22	0.0-2.9	.43	.43			
	9-12	2-10	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.28	.28			
	12-19	2-10	1.35-1.70	0.60-2.00	0.17-0.22	0.0-2.9	.43	.43			
	19-24	5-18	1.40-1.70	2.00-6.00	0.08-0.19	0.0-2.9	.24	.17			
	24-30	5-18	1.40-1.75	0.60-2.00	0.14-0.19	0.0-2.9	.24	.28			
	30-58	5-18	1.45-1.75	0.60-2.00	0.09-0.21	0.0-2.9	.24	.28			
	58-80	---	---	0.06-0.60	---	---	---	---			
76A:											
Shuberts--------	0-6	---	---	6.00-20.00	---	---	---	---	5	1	250
	6-25	0-15	1.50-1.70	6.00-20.00	0.03-0.10	0.0-2.9	.15	.15			
	25-80	---	---	0.06-0.60	---	---	---	---			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
76A:											
Manistique------	0-2	0-10	1.20-1.57	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15	5	1	250
	2-12	0-10	1.40-1.60	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	12-24	0-10	1.40-1.60	6.00-20.00	0.04-0.08	0.0-2.9	.15	.15			
	24-28	0-10	1.50-1.65	6.00-20.00	0.02-0.08	0.0-2.9	.15	.15			
	28-80	---	---	0.06-0.60	---	---	---	---			
78B:											
Heinz----------	0-1	---	---	2.00-6.00	---	---	---	---	5	3	86
	1-5	2-10	1.30-1.60	2.00-6.00	0.12-0.15	0.0-2.9	.20	.24			
	5-6	2-10	1.30-1.60	2.00-6.00	0.08-0.14	0.0-2.9	.20	.20			
	6-8	2-10	1.35-1.65	2.00-6.00	0.10-0.15	0.0-2.9	.20	.24			
	8-25	1-5	1.35-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.17			
	25-80	0-5	1.50-1.65	20.00-56.68	0.02-0.04	0.0-2.9	.05	.17			
80F:											
Deer Park-------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-3	0-5	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	3-10	0-10	1.20-1.50	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	10-21	0-10	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	21-80	0-10	1.50-1.60	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Dawson----------	0-10	---	0.05-0.15	6.00-20.00	0.55-0.65	0.0-2.9	---	---	4	8	0
	10-38	---	0.13-0.23	0.20-6.00	0.35-0.45	0.0-2.9	---	---			
	38-80	0-10	1.50-1.70	6.00-20.00	0.03-0.10	0.0-2.9	.15	.15			
Wainola---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	250
	2-12	0-5	1.20-1.57	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	12-18	0-5	1.40-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	18-27	0-5	1.40-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	27-41	0-5	1.40-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	41-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
84:											
Dawson----------	0-10	---	0.05-0.15	6.00-20.00	0.55-0.65	0.0-2.9	---	---	4	8	0
	10-38	---	0.13-0.23	0.20-6.00	0.35-0.45	0.0-2.9	---	---			
	38-80	0-10	1.50-1.70	6.00-20.00	0.03-0.10	0.0-2.9	.15	.15			
Kinross---------	0-3	---	0.10-0.35	6.00-20.00	0.35-0.45	---	---	---	2	2	134
	3-14	0-5	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	14-22	0-5	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	22-35	0-3	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	35-80	0-1	1.40-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15			
86B:											
Wurtsmith-------	0-2	0-5	1.35-1.60	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-7	0-5	1.35-1.60	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-15	0-5	1.50-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	15-26	0-5	1.50-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	26-80	0-5	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Tawas----------	0-26	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	8	0
	26-80	0-3	1.20-1.57	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
Deford----------	0-4	---	0.20-0.30	0.60-6.00	0.35-0.45	0.0-0.0	---	---	5	2	134
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
87B:											
Longrie---------	0-1	---	---	5.98-20.00	---	---	---	---	4	3	86
	1-2	---	---	5.98-20.00	---	---	---	---			
	2-6	2-10	1.10-1.60	0.60-2.00	0.12-0.24	0.0-2.9	.32	.32			
	6-8	2-10	1.45-1.60	0.60-2.00	0.13-0.24	0.0-2.9	.28	.28			
	8-23	2-10	1.35-1.65	0.60-2.00	0.12-0.24	0.0-2.9	.32	.32			
	23-36	2-10	1.35-1.65	0.60-2.00	0.08-0.17	0.0-2.9	.24	.24			
	36-80	---	---	0.06-0.60	---	---	---	---			
Amadon----------	0-2	---	---	0.60-2.00	---	---	---	---	2	5	56
	2-8	2-10	1.30-1.60	0.60-2.00	0.11-0.22	0.0-2.9	.43	.43			
	8-10	2-10	1.45-1.60	0.60-2.00	0.13-0.24	0.0-2.9	.28	.28			
	10-15	2-10	1.45-1.60	0.60-2.00	0.09-0.19	0.0-2.9	.24	.24			
	15-80	---	---	0.06-0.60	---	---	---	---			
87D:											
Amadon----------	0-2	---	---	0.60-2.00	---	---	---	---	2	3	86
	2-8	2-10	1.30-1.60	0.60-2.00	0.11-0.22	0.0-2.9	.43	.43			
	8-10	2-10	1.45-1.60	0.60-2.00	0.13-0.24	0.0-2.9	.28	.28			
	10-15	2-10	1.45-1.60	0.60-2.00	0.09-0.19	0.0-2.9	.24	.24			
	15-80	---	---	0.06-0.60	---	---	---	---			
Longrie---------	0-1	---	---	5.98-20.00	---	---	---	---	4	3	86
	1-2	---	---	5.98-20.00	---	---	---	---			
	2-6	2-10	1.10-1.60	0.60-2.00	0.12-0.24	0.0-2.9	.32	.32			
	6-8	2-10	1.45-1.60	0.60-2.00	0.13-0.24	0.0-2.9	.28	.28			
	8-23	2-10	1.35-1.65	0.60-2.00	0.12-0.24	0.0-2.9	.32	.32			
	23-36	2-10	1.35-1.65	0.60-2.00	0.08-0.17	0.0-2.9	.24	.24			
	36-80	---	---	0.06-0.60	---	---	---	---			
87E:											
Amadon----------	0-2	---	---	0.60-2.00	---	---	---	---	2	3	86
	2-8	2-10	1.30-1.60	0.60-2.00	0.11-0.22	0.0-2.9	.43	.43			
	8-10	2-10	1.45-1.60	0.60-2.00	0.13-0.24	0.0-2.9	.28	.28			
	10-15	2-10	1.45-1.60	0.60-2.00	0.09-0.19	0.0-2.9	.24	.24			
	15-80	---	---	0.06-0.60	---	---	---	---			
Longrie---------	0-1	---	---	5.98-20.00	---	---	---	---	4	3	86
	1-2	---	---	5.98-20.00	---	---	---	---			
	2-6	2-10	1.10-1.60	0.60-2.00	0.12-0.24	0.0-2.9	.32	.32			
	6-8	2-10	1.45-1.60	0.60-2.00	0.13-0.24	0.0-2.9	.28	.28			
	8-23	2-10	1.35-1.65	0.60-2.00	0.12-0.24	0.0-2.9	.32	.32			
	23-36	2-10	1.35-1.65	0.60-2.00	0.08-0.17	0.0-2.9	.24	.24			
	36-80	---	---	0.06-0.60	---	---	---	---			
Rock outcrop----	0-80	---	---	0.00-0.06	---	---	---	---	-	---	---
88B:											
Cookson---------	0-3	---	---	0.60-2.00	---	---	---	---	4	5	56
	3-7	0-18	1.30-1.55	0.60-2.00	0.15-0.24	0.0-2.9	.37	.37			
	7-11	0-18	1.35-1.70	0.60-2.00	0.15-0.24	0.0-2.9	.28	.28			
	11-16	0-18	1.35-1.70	0.60-2.00	0.15-0.24	0.0-2.9	.43	.43			
	16-21	0-18	1.45-1.70	0.60-2.00	0.15-0.24	0.0-2.9	.24	.24			
	21-31	5-25	1.45-1.75	0.60-2.00	0.11-0.22	0.0-2.9	.32	.32			
	31-36	0-25	1.60-1.80	0.60-2.00	0.10-0.22	0.0-2.9	.24	.24			
	36-80	---	---	0.06-0.60	---	---	---	---			
Amadon----------	0-2	---	---	0.60-2.00	---	---	---	---	2	5	56
	2-8	2-10	1.30-1.60	0.60-2.00	0.11-0.22	0.0-2.9	.43	.43			
	8-10	2-10	1.45-1.60	0.60-2.00	0.13-0.24	0.0-2.9	.28	.28			
	10-15	2-10	1.45-1.60	0.60-2.00	0.09-0.19	0.0-2.9	.24	.24			
	15-80	---	---	0.06-0.60	---	---	---	---			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
89B:											
Cookson---------	0-3	---	---	0.60-2.00	---	---	---	---	4	5	56
	3-7	0-18	1.30-1.55	0.60-2.00	0.15-0.24	0.0-2.9	.37	.37			
	7-11	0-18	1.35-1.70	0.60-2.00	0.15-0.24	0.0-2.9	.28	.28			
	11-16	0-18	1.35-1.70	0.60-2.00	0.15-0.24	0.0-2.9	.43	.43			
	16-21	0-18	1.45-1.70	0.60-2.00	0.15-0.24	0.0-2.9	.24	.24			
	21-31	5-25	1.45-1.75	0.60-2.00	0.11-0.22	0.0-2.9	.32	.32			
	31-36	0-25	1.60-1.80	0.60-2.00	0.10-0.22	0.0-2.9	.24	.24			
	36-80	---	---	0.06-0.60	---	---	---	---			
Trenary---------	0-2	2-10	1.10-1.60	0.60-2.00	0.14-0.18	0.0-2.9	.20	.24	5	5	56
	2-6	2-10	1.10-1.60	0.60-2.00	0.14-0.24	0.0-2.9	.20	.24			
	6-12	2-10	1.10-1.60	0.60-2.00	0.14-0.24	0.0-2.9	.20	.24			
	12-17	2-10	1.10-1.60	0.60-2.00	0.13-0.17	0.0-2.9	.20	.24			
	17-26	4-10	1.35-1.70	0.60-2.00	0.10-0.14	0.0-2.9	.20	.24			
	26-37	15-27	1.35-1.70	0.60-2.00	0.15-0.17	0.0-2.9	.28	.32			
	37-80	5-14	1.55-1.75	0.60-2.00	0.10-0.15	0.0-2.9	.20	.28			
90:											
Chippeny--------	0-20	---	0.20-0.45	0.20-6.00	0.35-0.45	0.0-2.9	---	---	4	2	134
	20-28	5-40	1.50-1.80	0.20-2.00	0.07-0.22	0.0-6.0	.43	.43			
	28-80	---	---	0.00-0.60	---	---	---	---			
91:											
Cathro----------	0-34	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	8	0
	34-80	5-18	1.70-1.80	0.20-0.61	0.07-0.22	0.0-2.9	.15	.24			
Lupton----------	0-4	---	0.05-0.15	6.00-20.00	0.55-0.65	0.0-2.9	---	---	5	8	0
	4-80	---	0.20-0.30	0.20-6.00	0.35-0.45	0.0-2.9	---	---			
93A:											
Ruse----------	0-7	0-20	1.10-1.60	0.60-6.00	0.14-0.24	0.0-2.9	.28	.28	2	5	56
	7-11	0-20	1.50-1.80	0.60-6.00	0.11-0.15	0.0-2.9	.24	.24			
	11-15	0-20	1.50-1.80	0.60-6.00	0.10-0.14	0.0-2.9	.24	.24			
	15-80	---	---	0.00-0.60	---	---	---	---			
Ensign----------	0-1	---	---	0.60-2.00	---	---	---	---	2	3	86
	1-5	4-12	1.30-1.60	0.60-2.00	0.08-0.24	0.0-2.9	.24	.24			
	5-8	4-12	1.35-1.70	0.60-2.00	0.08-0.24	0.0-2.9	.24	.24			
	8-15	4-12	1.35-1.70	0.60-2.00	0.08-0.24	0.0-2.9	.24	.24			
	15-80	---	---	0.00-0.60	---	---	---	---			
98B:											
Guardlake-------	0-1	---	---	2.00-6.00	---	---	---	---	3	3	86
	1-2	0-15	1.30-1.60	2.00-6.00	0.11-0.24	0.0-2.9	.20	.24			
	2-4	0-15	1.30-1.60	2.00-6.00	0.11-0.24	0.0-2.9	.20	.24			
	4-13	0-15	1.35-1.70	2.00-6.00	0.11-0.22	0.0-2.9	.20	.24			
	13-80	0-10	1.50-1.70	20.00-59.98	0.02-0.07	0.0-2.9	.05	.15			
98D:											
Guardlake-------	0-1	---	---	2.00-6.00	---	---	---	---	3	3	86
	1-2	0-15	1.30-1.60	2.00-6.00	0.11-0.24	0.0-2.9	.20	.24			
	2-4	0-15	1.30-1.60	2.00-6.00	0.11-0.24	0.0-2.9	.20	.24			
	4-13	0-15	1.35-1.70	2.00-6.00	0.11-0.22	0.0-2.9	.20	.24			
	13-80	0-10	1.50-1.70	20.00-59.98	0.02-0.07	0.0-2.9	.05	.15			
98E:											
Guardlake-------	0-1	---	---	2.00-6.00	---	---	---	---	3	3	86
	1-2	0-15	1.30-1.60	2.00-6.00	0.11-0.24	0.0-2.9	.20	.24			
	2-4	0-15	1.30-1.60	2.00-6.00	0.11-0.24	0.0-2.9	.20	.24			
	4-13	0-15	1.35-1.70	2.00-6.00	0.11-0.22	0.0-2.9	.20	.24			
	13-80	0-10	1.50-1.70	20.00-59.98	0.02-0.07	0.0-2.9	.05	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
116F:											
Udipsamments----	0-80	0-10	1.35-1.65	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15	5	1	250
Udorthents------	0-80	---	---	0.20-6.00	---	---	---	---	5	---	---
119. Landfill											
120A:											
Charlevoix------	0-2	---	---	0.60-2.00	---	---	---	---	5	4L	86
	2-5	0-10	1.20-1.50	0.60-2.00	0.20-0.22	0.0-2.9	.28	.37			
	5-7	2-10	1.35-1.60	0.60-2.00	0.20-0.22	0.0-2.9	.37	.43			
	7-12	0-10	1.20-1.50	0.60-2.00	0.20-0.22	0.0-2.9	.37	.43			
	12-16	6-12	1.60-1.80	0.60-2.00	0.15-0.17	0.0-2.9	.17	.24			
	16-27	10-16	1.60-1.80	0.60-2.00	0.15-0.17	0.0-2.9	.17	.24			
	27-80	7-15	1.70-1.85	0.20-0.60	0.14-0.16	0.0-2.9	.15	.28			
Ensley----------	0-5	---	---	0.60-2.00	---	---	---	---	4	2	134
	5-7	7-20	1.10-1.35	0.60-2.00	0.19-0.21	0.0-2.9	.32	.37			
	7-19	7-20	1.50-1.85	0.60-2.00	0.10-0.19	0.0-2.9	.20	.28			
	19-80	5-15	1.70-1.80	0.60-2.00	0.10-0.19	0.0-2.9	.15	.28			
122A:											
Wormet----------	0-2	---	---	0.60-6.00	---	---	---	---	4	3	86
	2-5	2-7	1.30-1.60	0.60-6.00	0.16-0.18	0.0-2.9	.24	.24			
	5-7	2-7	1.35-1.70	0.60-6.00	0.16-0.18	0.0-2.9	.24	.24			
	7-12	2-7	1.35-1.70	0.60-6.00	0.15-0.17	0.0-2.9	.24	.24			
	12-23	0-3	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	23-80	0-3	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
123:											
Minocqua--------	0-5	---	---	0.60-2.00	---	---	---	---	5	5	56
	5-7	0-10	1.10-1.60	0.60-2.00	0.13-0.24	0.0-2.9	.24	.24			
	7-18	0-10	1.10-1.60	0.60-2.00	0.13-0.24	0.0-2.9	.24	.24			
	18-23	0-10	1.48-1.80	0.60-2.00	0.12-0.22	0.0-2.9	.43	.43			
	23-80	0-5	1.46-1.80	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
125B:											
Stutts----------	0-1	---	0.10-0.20	2.00-6.00	---	---	---	---	5	2	134
	1-2	0-8	1.30-1.60	2.00-6.00	0.12-0.18	0.0-2.9	.24	.24			
	2-7	2-8	1.30-1.65	2.00-6.00	0.12-0.18	0.0-2.9	.24	.24			
	7-9	4-10	1.35-1.70	2.00-6.00	0.11-0.17	0.0-2.9	.24	.24			
	9-13	4-10	1.35-1.70	2.00-6.00	0.11-0.17	0.0-2.9	.24	.24			
	13-19	4-10	1.35-1.70	2.00-5.95	0.11-0.17	0.0-2.9	.24	.24			
	19-80	0-5	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
Kalkaska--------	0-1	---	---	6.00-20.00	---	---	---	---	5	2	134
	1-6	3-8	1.35-1.65	6.00-20.00	0.10-0.12	0.0-2.9	.17	.17			
	6-8	3-8	1.30-1.60	6.00-20.00	0.10-0.12	0.0-2.9	.17	.17			
	8-12	1-8	1.30-1.70	6.00-20.00	0.06-0.11	0.0-2.9	.17	.17			
	12-23	0-5	1.30-1.70	6.00-20.00	0.03-0.08	0.0-2.9	.15	.15			
	23-38	0-5	1.30-1.70	6.00-20.00	0.03-0.08	0.0-2.9	.15	.15			
	38-80	0-5	1.55-1.75	6.00-20.00	0.02-0.06	0.0-2.9	.15	.15			
125D:											
Stutts----------	0-1	---	0.10-0.20	2.00-6.00	---	---	---	---	5	2	134
	1-2	0-8	1.30-1.60	2.00-6.00	0.12-0.18	0.0-2.9	.24	.24			
	2-7	2-8	1.30-1.65	2.00-6.00	0.12-0.18	0.0-2.9	.24	.24			
	7-9	4-10	1.35-1.70	2.00-6.00	0.11-0.17	0.0-2.9	.24	.24			
	9-13	4-10	1.35-1.70	2.00-6.00	0.11-0.17	0.0-2.9	.24	.24			
	13-19	4-10	1.35-1.70	2.00-5.95	0.11-0.17	0.0-2.9	.24	.24			
	19-80	0-5	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
125D:											
Kalkaska--------	0-1	---	---	6.00-20.00	---	---	---	---	5	2	134
	1-6	3-8	1.35-1.65	6.00-20.00	0.10-0.12	0.0-2.9	.17	.17			
	6-8	3-8	1.30-1.60	6.00-20.00	0.10-0.12	0.0-2.9	.17	.17			
	8-12	1-8	1.30-1.70	6.00-20.00	0.06-0.11	0.0-2.9	.17	.17			
	12-23	0-5	1.30-1.70	6.00-20.00	0.03-0.08	0.0-2.9	.15	.15			
	23-38	0-5	1.30-1.70	6.00-20.00	0.03-0.08	0.0-2.9	.15	.15			
	38-80	0-5	1.55-1.75	6.00-20.00	0.02-0.06	0.0-2.9	.15	.15			
125E:											
Stutts----------	0-1	---	0.10-0.20	2.00-6.00	---	---	---	---	5	2	134
	1-2	0-8	1.30-1.60	2.00-6.00	0.12-0.18	0.0-2.9	.24	.24			
	2-7	2-8	1.30-1.65	2.00-6.00	0.12-0.18	0.0-2.9	.24	.24			
	7-9	4-10	1.35-1.70	2.00-6.00	0.11-0.17	0.0-2.9	.24	.24			
	9-13	4-10	1.35-1.70	2.00-6.00	0.11-0.17	0.0-2.9	.24	.24			
	13-19	4-10	1.35-1.70	2.00-5.95	0.11-0.17	0.0-2.9	.24	.24			
	19-80	0-5	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
Kalkaska--------	0-1	---	---	6.00-20.00	---	---	---	---	5	2	134
	1-6	3-8	1.35-1.65	6.00-20.00	0.10-0.12	0.0-2.9	.17	.17			
	6-8	3-8	1.30-1.60	6.00-20.00	0.10-0.12	0.0-2.9	.17	.17			
	8-12	1-8	1.30-1.70	6.00-20.00	0.06-0.11	0.0-2.9	.17	.17			
	12-23	0-5	1.30-1.70	6.00-20.00	0.03-0.08	0.0-2.9	.15	.15			
	23-38	0-5	1.30-1.70	6.00-20.00	0.03-0.08	0.0-2.9	.15	.15			
	38-80	0-5	1.55-1.75	6.00-20.00	0.02-0.06	0.0-2.9	.15	.15			
131B:											
Furlong---------	0-1	---	---	6.00-20.00	---	---	---	---	4	1	220
	1-2	0-5	1.35-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	2-5	0-10	1.35-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-7	0-10	1.35-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	7-19	0-10	1.30-1.70	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	19-22	0-5	1.55-1.75	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	22-80	---	---	0.06-0.60	---	---	---	---			
Shingleton------	0-1	0-10	1.35-1.65	6.00-20.00	0.05-0.12	0.0-2.9	.17	.17	4	2	134
	1-7	0-10	1.35-1.65	6.00-20.00	0.05-0.12	0.0-2.9	.17	.17			
	7-8	0-10	1.30-1.70	6.00-20.00	0.05-0.11	0.0-2.9	.17	.17			
	8-11	0-10	1.30-1.70	6.00-20.00	0.05-0.11	0.0-2.9	.17	.17			
	11-80	---	---	0.00-0.06	---	---	---	---			
141A:											
Halfaday--------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-9	0-5	1.30-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	9-10	0-5	1.30-1.70	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	10-35	0-4	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	35-80	0-2	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
145B:											
Noseum----------	0-2	---	---	2.00-6.00	---	---	---	---	4	3	86
	2-5	2-7	1.30-1.60	2.00-6.00	0.16-0.18	0.0-2.9	.24	.24			
	5-7	2-7	1.35-1.70	2.00-6.00	0.16-0.18	0.0-2.9	.24	.24			
	7-19	2-7	1.35-1.70	2.00-6.00	0.15-0.17	0.0-2.9	.24	.24			
	19-27	0-3	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	27-80	0-3	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
155B:											
Karlin----------	0-3	0-10	1.35-1.65	2.00-6.00	0.09-0.18	0.0-2.9	.17	.17	3	2	134
	3-7	0-10	1.35-1.65	2.00-6.00	0.09-0.18	0.0-2.9	.17	.17			
	7-17	0-10	1.30-1.70	2.00-20.00	0.08-0.17	0.0-2.9	.17	.17			
	17-31	0-5	1.30-1.70	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
	31-80	0-5	1.55-1.75	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
160B:											
Paquin----------	0-2	---	---	6.00-20.00	---	---	---	---	2	1	220
	2-12	0-5	1.35-1.45	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	12-14	0-5	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	14-17	0-5	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	17-27	0-3	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	27-34	0-1	1.45-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	34-80	0-1	1.50-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
Finch----------	0-1	---	---	6.00-20.00	---	---	---	---	2	1	220
	1-11	0-3	1.20-1.57	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	11-42	0-3	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	42-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
218. Pits, quarry											
219B:											
Cublake---------	0-3	0-10	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15	5	1	220
	3-4	0-10	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	4-23	0-10	1.30-1.60	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	23-32	0-10	1.50-1.60	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
	32-48	0-10	1.50-1.60	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
	48-80	0-35	1.50-1.60	0.20-2.00	0.05-0.20	0.0-2.9	.32	.32			
222:											
Histosols-------	0-51	---	---	0.20-6.00	---	---	---	---	5	8	0
	51-80	---	---	0.01-0.02	---	---	---	---			
Aquents---------	0-80	---	---	0.20-2.00	---	---	---	---	3	---	---
225B:											
Cusino----------	0-2	---	---	6.00-20.00	---	---	---	---	5	2	134
	2-8	0-8	1.35-1.65	6.00-20.00	0.09-0.12	0.0-2.9	.15	.17			
	8-10	0-10	1.30-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.17			
	10-17	0-5	1.30-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	17-80	0-5	1.55-1.65	20.00-60.00	0.02-0.07	0.0-2.9	.10	.10			
248B:											
Escanaba--------	0-1	---	---	2.00-6.00	---	---	---	---	5	2	134
	1-3	0-6	1.30-1.70	2.00-6.00	0.06-0.12	0.0-2.9	.15	.17			
	3-6	0-6	1.30-1.65	2.00-6.00	0.06-0.12	0.0-2.9	.15	.17			
	6-26	0-6	1.30-1.65	2.00-6.00	0.05-0.11	0.0-2.9	.15	.17			
	26-35	6-15	1.30-1.70	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	35-42	10-18	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.24	.28			
	42-80	6-14	1.60-1.80	0.60-2.00	0.11-0.16	0.0-2.9	.17	.28			
Greylock--------	0-1	---	---	0.60-2.00	---	---	---	---	5	3	86
	1-6	2-8	1.30-1.60	0.60-2.00	0.12-0.18	0.0-2.9	.20	.24			
	6-7	2-8	1.30-1.65	0.60-2.00	0.09-0.18	0.0-2.9	.20	.24			
	7-9	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	9-19	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	19-26	4-10	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	26-34	6-15	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	34-80	6-14	1.60-1.80	0.60-2.00	0.11-0.16	0.0-2.9	.17	.28			
249A:											
Iosco----------	0-6	---	---	5.95-19.98	---	---	---	---	5	1	220
	6-11	2-10	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.10	.15			
	11-27	2-5	1.45-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.17			
	27-38	12-25	1.55-1.65	0.57-1.98	0.15-0.19	0.0-2.9	.24	.32			
	38-80	8-20	1.30-1.70	0.57-1.98	0.10-0.19	0.0-2.9	.17	.24			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
267A:											
Finch----------	0-1	---	---	6.00-20.00	---	---	---	---	2	1	220
	1-11	0-3	1.20-1.57	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	11-42	0-3	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	42-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-3.0	.15	.15			
287B:											
Hiawatha--------	0-2	---	---	0.60-2.00	---	---	---	---	5	1	250
	2-6	5-15	---	0.60-2.00	0.05-0.07	0.0-2.9	.15	.15			
	6-80	0-5	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
289B:											
Wallace---------	0-2	---	---	6.00-20.00	---	---	---	---	2	1	220
	2-10	0-5	1.35-1.45	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	10-11	0-5	1.45-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	11-21	0-5	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	21-26	0-5	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	26-59	0-5	1.45-1.60	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15			
	59-80	0-5	1.45-1.60	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15			
289D:											
Wallace---------	0-2	---	---	6.00-20.00	---	---	---	---	2	1	220
	2-10	0-5	1.35-1.45	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	10-11	0-5	1.45-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	11-21	0-5	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	21-26	0-5	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	26-59	0-5	1.45-1.60	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15			
	59-80	0-5	1.45-1.60	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15			
289E:											
Wallace---------	0-2	---	---	6.00-20.00	---	---	---	---	2	1	220
	2-10	0-5	1.35-1.45	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	10-11	0-5	1.45-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	11-21	0-5	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	21-26	0-5	1.65-1.80	0.60-6.00	0.02-0.04	0.0-2.9	.15	.15			
	26-59	0-5	1.45-1.60	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15			
	59-80	0-5	1.45-1.60	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15			
294B:											
Munising--------	0-1	---	---	0.60-2.00	---	---	---	---	4	2	134
	1-3	5-10	1.30-1.60	0.60-2.00	0.14-0.18	0.0-2.9	.20	.24			
	3-6	5-10	1.35-1.60	0.60-2.00	0.14-0.18	0.0-2.9	.20	.24			
	6-23	5-10	1.35-1.60	0.60-2.00	0.14-0.18	0.0-2.9	.20	.24			
	23-38	3-8	1.80-1.90	0.00-0.06	0.02-0.04	0.0-2.9	.15	.17			
	38-50	5-12	1.80-1.90	0.00-0.06	0.02-0.04	0.0-2.9	.20	.24			
	50-63	8-15	1.60-1.80	0.60-2.00	0.11-0.14	0.0-2.9	.15	.24			
	63-80	8-15	1.60-1.85	0.60-2.00	0.11-0.14	0.0-2.9	.15	.24			
Yalmer----------	0-1	---	---	6.00-20.00	---	---	---	---	4	2	134
	1-2	0-8	1.35-1.65	6.00-20.00	0.08-0.12	0.0-2.9	.17	.17			
	2-5	0-8	1.35-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-16	0-8	1.30-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.15	.17			
	16-28	0-8	1.30-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.10	.17			
	28-36	2-10	1.80-1.90	0.00-0.06	0.02-0.04	0.0-2.9	.15	.17			
	36-62	5-12	1.80-1.90	0.00-0.06	0.02-0.04	0.0-2.9	.20	.24			
	62-80	8-15	1.60-1.85	0.60-2.00	0.11-0.14	0.0-2.9	.15	.24			
Frohling--------	0-2	---	---	0.60-2.00	---	---	---	---	5	3	86
	2-5	2-8	1.30-1.65	0.60-2.00	0.09-0.18	0.0-2.9	.20	.24			
	5-24	2-8	1.35-1.70	0.60-2.00	0.14-0.17	0.0-2.9	.20	.24			
	24-73	4-12	1.80-2.10	0.00-0.06	0.02-0.04	0.0-2.9	.20	.24			
	73-80	8-12	1.60-1.80	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
295E:											
Dillingham------	0-1	---	---	2.00-6.00	---	---	---	---	4	2	134
	1-8	1-5	1.30-1.60	2.00-6.00	0.10-0.12	0.0-2.9	.17	.17			
	8-11	1-5	1.40-1.70	2.00-6.00	0.10-0.12	0.0-2.9	.17	.17			
	11-21	1-5	1.40-1.70	2.00-6.00	0.10-0.12	0.0-2.9	.17	.17			
	21-31	1-5	1.80-2.10	0.06-0.20	0.03-0.06	0.0-2.9	.17	.17			
	31-80	0-5	1.55-1.75	2.00-6.00	0.02-0.04	0.0-2.9	.17	.17			
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
355B:											
Springlake------	0-1	---	---	20.00-99.90	---	---	---	---	4	2	134
	1-7	1-7	1.30-1.60	20.00-99.90	0.09-0.12	0.0-2.9	.15	.17			
	7-9	1-7	1.30-1.60	20.00-99.90	0.05-0.11	0.0-2.9	.15	.15			
	9-14	1-6	1.40-1.65	20.00-99.90	0.06-0.08	0.0-2.9	.15	.15			
	14-23	1-6	1.40-1.65	20.00-99.90	0.06-0.08	0.0-2.9	.15	.15			
	23-26	0-3	1.50-1.65	20.00-99.90	0.02-0.04	0.0-2.9	.15	.15			
	26-80	0-3	1.50-1.65	20.00-99.90	0.02-0.04	0.0-2.9	.10	.15			
366B:											
Gilchrist-------	0-3	---	---	6.00-20.00	---	---	---	---	4	2	86
	3-7	1-8	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	7-9	1-8	1.30-1.60	6.00-20.00	0.10-0.12	0.0-2.9	.17	.17			
	9-26	1-8	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	5-12	1.80-2.10	0.00-0.06	0.02-0.04	0.0-2.9	.15	.20			
367B:											
Cozy----------	0-5	---	---	0.60-2.00	---	---	---	---	3	3	86
	5-6	2-10	1.30-1.60	0.60-2.00	0.11-0.18	0.0-2.9	.24	.24			
	6-10	2-10	1.35-1.70	0.60-2.00	0.11-0.18	0.0-2.9	.20	.20			
	10-14	2-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.24	.24			
	14-80	2-10	1.80-2.10	0.00-0.06	0.02-0.03	0.0-2.9	.10	.28			
400B:											
Amadon----------	0-2	---	---	0.60-2.00	---	---	---	---	2	5	56
	2-8	2-10	1.30-1.60	0.60-2.00	0.11-0.22	0.0-2.9	.43	.43			
	8-10	2-10	1.45-1.60	0.60-2.00	0.13-0.24	0.0-2.9	.28	.28			
	10-15	2-10	1.45-1.60	0.60-2.00	0.09-0.19	0.0-2.9	.24	.24			
	15-80	---	---	0.06-0.57	---	---	---	---			
Rock outcrop.											
401A:											
Ingalls---------	0-4	---	---	6.00-20.00	0.35-0.45	---	---	---	5	2	134
	4-5	0-8	1.20-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	5-14	0-10	1.20-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	14-16	0-10	1.35-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	16-35	0-10	1.35-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	35-80	0-15	1.65-1.80	0.20-0.60	0.14-0.22	0.0-2.9	.43	.43			
490B:											
Pelkie----------	0-6	0-15	1.35-1.60	6.00-20.00	0.10-0.22	0.0-2.9	.17	.17	5	2	134
	6-38	0-10	1.50-1.70	6.00-20.00	0.06-0.11	0.0-2.9	.17	.17			
	38-80	0-10	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Arnheim---------	0-6	2-10	1.10-1.60	0.60-2.00	0.10-0.24	0.0-2.9	.28	.28	5	5	56
	6-32	8-18	1.48-1.80	0.60-2.00	0.17-0.22	0.0-2.9	.43	.43			
	32-80	5-10	1.48-1.80	0.60-2.00	0.08-0.22	0.0-2.9	.24	.24			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
491B:											
Neconish--------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	250
	1-8	0-5	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	8-21	0-5	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	21-32	0-5	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	32-80	0-5	1.50-1.60	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Deford----------	0-4	---	0.20-0.30	0.60-6.00	0.35-0.45	0.0-0.0	---	---	5	8	0
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
Wainola---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	250
	2-12	0-5	1.20-1.57	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	12-18	0-5	1.40-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	18-27	0-5	1.40-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	27-41	0-5	1.40-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	41-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
492D:											
Wurtsmith-------	0-2	0-5	1.35-1.60	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-7	0-5	1.35-1.60	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-15	0-5	1.50-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	15-26	0-5	1.50-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	26-80	0-5	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Duck----------	0-1	---	---	0.60-2.00	---	---	---	---	5	3	86
	1-6	7-15	0.20-0.40	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	6-15	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	15-80	0-2	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
493A:											
Deford----------	0-4	---	0.20-0.30	0.60-6.00	0.35-0.45	0.0-0.0	---	---	5	2	134
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
Meehan----------	0-3	---	---	6.00-20.00	---	---	---	---	5	1	220
	3-7	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	7-11	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	11-23	0-10	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
	23-80	0-10	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
Seney----------	0-1	---	---	0.60-2.00	---	---	---	---	5	3	86
	1-5	7-15	0.20-0.40	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	5-14	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	14-80	0-10	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
498B:											
Bursaw----------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-49	0-5	1.25-1.65	19.98-56.68	0.02-0.04	0.0-2.9	.10	.15			
	49-80	2-12	1.55-1.65	0.00-0.06	0.04-0.07	0.0-2.9	.15	.28			
Beavertail------	0-8	---	---	0.60-2.00	---	---	---	---	4	2	134
	8-16	2-10	1.45-1.65	0.60-2.00	0.16-0.18	0.0-2.9	.32	.37			
	16-29	2-10	1.70-1.80	0.60-2.00	0.15-0.17	0.0-2.9	.32	.37			
	29-80	2-10	1.80-2.10	0.00-0.06	0.02-0.03	0.0-2.9	.10	.28			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
505B:											
Graveraet-------	0-1	---	---	0.60-2.00	---	---	---	---	3	3	86
	1-4	2-10	1.40-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.24	.24			
	4-7	2-10	1.40-1.70	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	7-10	2-10	1.60-1.85	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	10-17	2-10	1.60-1.85	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	17-33	2-10	1.80-2.10	0.00-0.06	0.03-0.06	0.0-2.9	.17	.17			
	33-48	8-20	1.65-1.75	0.20-2.00	0.12-0.14	0.0-2.9	.37	.37			
	48-68	15-25	1.65-1.75	0.20-2.00	0.12-0.14	0.0-2.9	.37	.37			
	68-80	5-12	1.65-1.80	0.20-2.00	0.08-0.10	0.0-2.9	.28	.28			
505D:											
Graveraet-------	0-1	---	---	0.60-2.00	---	---	---	---	3	3	86
	1-4	2-10	1.40-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.24	.24			
	4-7	2-10	1.40-1.70	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	7-10	2-10	1.60-1.85	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	10-17	2-10	1.60-1.85	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	17-33	2-10	1.80-2.10	0.00-0.06	0.03-0.06	0.0-2.9	.17	.17			
	33-48	8-20	1.65-1.75	0.20-2.00	0.12-0.14	0.0-2.9	.37	.37			
	48-68	15-25	1.65-1.75	0.20-2.00	0.12-0.14	0.0-2.9	.37	.37			
	68-80	5-12	1.65-1.80	0.20-2.00	0.08-0.10	0.0-2.9	.28	.28			
512A:											
Growton---------	0-6	5-10	1.20-1.50	0.60-2.00	0.15-0.17	0.0-2.9	.20	.24	5	3	86
	6-18	5-15	1.20-1.50	0.60-2.00	0.15-0.21	0.0-2.9	.20	.24			
	18-25	12-18	1.35-1.60	0.60-2.00	0.11-0.17	0.0-2.9	.17	.24			
	25-80	7-15	1.60-1.80	0.60-2.00	0.10-0.14	0.0-2.9	.17	.28			
514B:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
514D:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
514E:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
515B:											
Vilas-----------	0-3	2-5	1.35-1.65	6.00-20.00	0.10-0.12	0.0-2.9	.17	.17	5	2	134
	3-5	0-4	1.35-1.65	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	5-9	2-5	1.50-1.65	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	9-20	0-3	1.50-1.65	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	20-80	0-1	1.50-1.65	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
516A:											
Deford----------	0-4	---	0.20-0.30	0.60-6.00	0.35-0.45	0.0-0.0	---	---	5	2	134
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
Meehan----------	0-3	---	---	6.00-20.00	---	---	---	---	5	1	220
	3-7	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	7-11	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	11-23	0-10	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
	23-80	0-10	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
517B:											
Mancelona-------	0-2	---	---	2.00-6.00	---	---	---	---	4	2	134
	2-7	0-5	1.30-1.65	2.00-19.98	0.07-0.12	0.0-2.9	.17	.24			
	7-19	1-7	1.30-1.65	2.00-20.00	0.06-0.12	0.0-2.9	.17	.24			
	19-26	1-10	1.30-1.65	2.00-6.00	0.06-0.12	0.0-2.9	.17	.24			
	26-80	0-3	1.45-1.65	19.98-56.68	0.02-0.04	0.0-2.9	.10	.15			
517D:											
Mancelona-------	0-2	---	---	2.00-6.00	---	---	---	---	4	2	134
	2-7	0-5	1.30-1.65	2.00-19.98	0.07-0.12	0.0-2.9	.17	.24			
	7-19	1-7	1.30-1.65	2.00-20.00	0.06-0.12	0.0-2.9	.17	.24			
	19-26	1-10	1.30-1.65	2.00-6.00	0.06-0.12	0.0-2.9	.17	.24			
	26-80	0-3	1.45-1.65	19.98-56.68	0.02-0.04	0.0-2.9	.10	.15			
518A:											
Deford----------	0-4	---	0.20-0.30	0.60-6.00	0.35-0.45	0.0-0.0	---	---	5	8	0
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
Seney----------	0-1	---	---	0.60-2.00	---	---	---	---	5	3	86
	1-5	7-15	0.20-0.40	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	5-14	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	14-80	0-10	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
519B:											
Trenary---------	0-2	2-10	1.10-1.60	0.60-2.00	0.14-0.18	0.0-2.9	.20	.24	5	5	56
	2-6	2-10	1.10-1.60	0.60-2.00	0.14-0.24	0.0-2.9	.20	.24			
	6-12	2-10	1.10-1.60	0.60-2.00	0.14-0.24	0.0-2.9	.20	.24			
	12-17	2-10	1.10-1.60	0.60-2.00	0.13-0.17	0.0-2.9	.20	.24			
	17-26	4-10	1.35-1.70	0.60-2.00	0.10-0.14	0.0-2.9	.20	.24			
	26-37	15-27	1.35-1.70	0.60-2.00	0.15-0.17	0.0-2.9	.28	.32			
	37-80	5-14	1.55-1.75	0.60-2.00	0.10-0.15	0.0-2.9	.20	.28			
520B:											
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
Sultz----------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	250
	1-2	0-10	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	2-6	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	6-18	0-10	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	18-51	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	51-80	0-15	1.55-1.75	0.20-0.60	0.08-0.20	0.0-2.9	.24	.24			
520D:											
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
520D:											
Sultz----------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	250
	1-2	0-10	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	2-6	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	6-18	0-10	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	18-51	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	51-80	0-15	1.55-1.75	0.20-0.60	0.08-0.20	0.0-2.9	.24	.24			
525B:											
Neconish--------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	250
	1-8	0-5	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	8-21	0-5	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	21-32	0-5	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	32-80	0-5	1.50-1.60	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Kinross---------	0-3	---	0.10-0.35	6.00-20.00	0.35-0.45	---	---	---	3	2	134
	3-14	0-5	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	14-22	0-5	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	22-35	0-3	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	35-80	0-1	1.40-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15			
Wainola---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	250
	2-12	0-5	1.20-1.57	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	12-18	0-5	1.40-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	18-27	0-5	1.40-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	27-41	0-5	1.40-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	41-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
526B:											
Graveraet-------	0-1	---	---	0.60-2.00	---	---	---	---	3	3	86
	1-4	2-10	1.40-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.24	.24			
	4-7	2-10	1.40-1.70	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	7-10	2-10	1.60-1.85	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	10-17	2-10	1.60-1.85	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	17-33	2-10	1.80-2.10	0.00-0.06	0.03-0.06	0.0-2.9	.17	.17			
	33-48	8-20	1.65-1.75	0.20-2.00	0.12-0.14	0.0-2.9	.37	.37			
	48-68	15-25	1.65-1.75	0.20-2.00	0.12-0.14	0.0-2.9	.37	.37			
	68-80	5-12	1.65-1.80	0.20-2.00	0.08-0.10	0.0-2.9	.28	.28			
Angelica--------	0-2	---	---	0.20-0.60	---	---	---	---	5	5	56
	2-6	5-20	1.10-1.65	0.20-0.60	0.12-0.24	0.0-2.9	.28	.28			
	6-10	5-27	1.48-1.80	0.20-0.60	0.10-0.22	0.0-2.9	.20	.24			
	10-17	14-27	1.46-1.80	0.20-0.60	0.09-0.19	0.0-2.9	.32	.37			
	17-80	18-27	1.46-1.80	0.20-0.60	0.09-0.19	0.0-2.9	.32	.37			
527B:											
Islandlake------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	220
	1-2	0-9	1.30-1.45	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	2-8	0-9	1.30-1.55	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	8-9	0-9	1.40-1.65	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	9-41	0-5	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	41-80	0-9	1.55-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
McMillan--------	0-1	---	---	0.60-2.00	---	---	---	---	4	3	86
	1-4	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	4-6	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	6-9	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	9-16	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	16-22	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	22-32	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	32-80	1-7	1.55-1.75	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
527D:											
Islandlake------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	220
	1-2	0-9	1.30-1.45	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	2-8	0-9	1.30-1.55	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	8-9	0-9	1.40-1.65	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	9-41	0-5	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	41-80	0-9	1.55-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
McMillan--------	0-1	---	---	0.60-2.00	---	---	---	---	4	3	86
	1-4	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	4-6	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	6-9	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	9-16	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	16-22	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	22-32	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	32-80	1-7	1.55-1.75	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
527E:											
Islandlake------	0-1	---	---	6.00-20.00	---	---	---	---	5	2	134
	1-2	0-9	1.30-1.45	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	2-8	0-9	1.30-1.55	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	8-9	0-9	1.40-1.65	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	9-41	0-5	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	41-80	0-9	1.55-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
McMillan--------	0-1	---	---	0.60-2.00	---	---	---	---	4	3	86
	1-4	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	4-6	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	6-9	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	9-16	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	16-22	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	22-32	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	32-80	1-7	1.55-1.75	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
531B:											
Greylock--------	0-1	---	---	0.60-2.00	---	---	---	---	5	3	86
	1-6	2-8	1.30-1.60	0.60-2.00	0.12-0.18	0.0-2.9	.20	.24			
	6-7	2-8	1.30-1.65	0.60-2.00	0.09-0.18	0.0-2.9	.20	.24			
	7-9	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	9-19	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	19-26	4-10	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	26-34	6-15	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	34-80	6-14	1.60-1.80	0.60-2.00	0.11-0.16	0.0-2.9	.17	.28			
531D:											
Greylock--------	0-1	---	---	0.60-2.00	---	---	---	---	5	3	86
	1-6	2-8	1.30-1.60	0.60-2.00	0.12-0.18	0.0-2.9	.20	.24			
	6-7	2-8	1.30-1.65	0.60-2.00	0.09-0.18	0.0-2.9	.20	.24			
	7-9	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	9-19	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	19-26	4-10	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	26-34	6-15	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	34-80	6-14	1.60-1.80	0.60-2.00	0.11-0.16	0.0-2.9	.17	.28			
532:											
Angelica--------	0-2	---	---	0.20-0.60	---	---	---	---	5	5	56
	2-6	5-20	1.10-1.65	0.20-0.60	0.12-0.24	0.0-2.9	.28	.28			
	6-10	5-27	1.48-1.80	0.20-0.60	0.10-0.22	0.0-2.9	.20	.24			
	10-17	10-27	1.46-1.80	0.20-0.60	0.09-0.19	0.0-2.9	.32	.37			
	17-80	18-27	1.46-1.80	0.20-0.60	0.09-0.19	0.0-2.9	.32	.37			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
534:											
Pickford--------	0-6	20-40	1.10-1.35	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43	3	5	56
	6-9	20-40	1.10-1.35	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43			
	9-13	27-40	1.40-1.65	0.00-0.06	0.09-0.13	6.0-8.9	.32	.32			
	13-24	40-60	1.50-1.70	0.00-0.06	0.08-0.12	6.0-8.9	.32	.32			
	24-80	40-60	1.50-1.70	0.00-0.06	0.08-0.12	6.0-8.9	.32	.32			
535B:											
Trenary---------	0-2	2-10	1.30-1.60	0.60-2.00	0.14-0.18	0.0-2.9	.20	.24	5	3	86
	2-6	2-8	1.35-1.60	0.60-2.00	0.14-0.24	0.0-2.9	.20	.24			
	6-12	2-8	1.35-1.65	0.60-2.00	0.14-0.24	0.0-2.9	.20	.24			
	12-17	4-12	1.35-1.70	0.60-2.00	0.13-0.17	0.0-2.9	.20	.24			
	17-26	4-10	1.35-1.70	0.60-2.00	0.10-0.14	0.0-2.9	.20	.24			
	26-37	15-27	1.35-1.70	0.60-2.00	0.15-0.17	0.0-2.9	.28	.32			
	37-80	5-14	1.55-1.75	0.60-2.00	0.10-0.15	0.0-2.9	.20	.28			
535D:											
Trenary---------	0-2	2-10	1.30-1.60	0.60-2.00	0.14-0.18	0.0-2.9	.20	.24	5	3	86
	2-6	2-8	1.35-1.60	0.60-2.00	0.14-0.24	0.0-2.9	.20	.24			
	6-12	2-8	1.35-1.65	0.60-2.00	0.14-0.24	0.0-2.9	.20	.24			
	12-17	4-12	1.35-1.70	0.60-2.00	0.13-0.17	0.0-2.9	.20	.24			
	17-26	4-10	1.35-1.70	0.60-2.00	0.10-0.14	0.0-2.9	.20	.24			
	26-37	15-27	1.35-1.70	0.60-2.00	0.15-0.17	0.0-2.9	.28	.32			
	37-80	5-14	1.55-1.75	0.60-2.00	0.10-0.15	0.0-2.9	.20	.28			
536B:											
Menominee-------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	220
	1-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-11	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	11-34	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	34-46	15-35	1.35-1.70	0.60-2.00	0.15-0.19	0.0-2.9	.32	.32			
	46-62	15-25	1.45-1.75	0.60-2.00	0.17-0.19	0.0-2.9	.32	.32			
	62-80	0-10	1.55-1.70	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
537B:											
McMillan--------	0-1	---	---	0.60-2.00	---	---	---	---	4	3	86
	1-4	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	4-6	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	6-9	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	9-16	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	16-22	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	22-32	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	32-80	1-7	1.55-1.75	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
537D:											
McMillan--------	0-1	---	---	0.60-2.00	---	---	---	---	4	3	86
	1-4	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	4-6	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	6-9	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	9-16	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	16-22	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	22-32	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	32-80	1-7	1.55-1.75	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
538B:											
Menominee-------	0-1	---	---	6.00-20.00	---	---	---	---	5	2	134
	1-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-11	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	11-34	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	34-46	15-35	1.35-1.70	0.60-2.00	0.15-0.19	0.0-2.9	.32	.32			
	46-62	15-25	1.45-1.75	0.60-2.00	0.17-0.19	0.0-2.9	.32	.32			
	62-80	0-10	1.55-1.70	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
538B:											
McMillan--------	0-1	---	---	0.60-2.00	---	---	---	---	4	3	86
	1-4	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	4-6	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	6-9	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	9-16	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	16-22	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	22-32	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	32-80	1-7	1.55-1.75	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
540D:											
Deford----------	0-4	---	0.20-0.30	0.60-6.00	0.35-0.45	0.0-0.0	---	---	5	2	134
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
Au Gres---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-17	0-10	1.40-1.65	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	17-28	0-10	1.40-1.65	6.00-20.00	0.06-0.07	0.0-2.9	.15	.15			
	28-80	0-10	1.50-1.65	6.00-20.00	0.05-0.06	0.0-2.9	.15	.15			
541D:											
Kinross---------	0-3	---	0.10-0.35	6.00-20.00	0.35-0.45	---	---	---	3	2	134
	3-14	0-5	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	14-22	0-5	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	22-35	0-3	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	35-80	0-1	1.40-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15			
Au Gres---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-17	0-10	1.40-1.65	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	17-28	0-10	1.40-1.65	6.00-20.00	0.06-0.07	0.0-2.9	.15	.15			
	28-80	0-10	1.50-1.65	6.00-20.00	0.05-0.06	0.0-2.9	.15	.15			
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
543B:											
Auger----------	0-7	1-8	1.30-1.60	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	5	5	56
	7-10	0-5	1.35-1.70	0.60-2.00	0.20-0.22	0.0-2.9	.37	.37			
	10-17	0-5	1.35-1.70	0.60-2.00	0.20-0.22	0.0-2.9	.37	.37			
	17-60	0-5	1.40-1.70	0.60-2.00	0.20-0.22	0.0-2.9	.37	.37			
	60-80	0-5	---	6.00-20.00	0.06-0.11	0.0-2.9	.17	.17			
546B:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
546D:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
547B:											
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
547D:											
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
548B:											
McMillan--------	0-1	---	---	0.60-2.00	---	---	---	---	4	3	86
	1-4	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	4-6	3-7	1.30-1.60	0.60-2.00	0.15-0.18	0.0-2.9	.24	.24			
	6-9	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	9-16	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	16-22	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	22-32	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
	32-80	1-7	1.55-1.75	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15			
Trenary---------	0-2	2-10	1.30-1.60	0.60-2.00	0.14-0.18	0.0-2.9	.20	.24	5	3	86
	2-6	2-8	1.35-1.60	0.60-2.00	0.14-0.24	0.0-2.9	.20	.24			
	6-12	2-8	1.35-1.65	0.60-2.00	0.14-0.24	0.0-2.9	.20	.24			
	12-17	4-12	1.35-1.70	0.60-2.00	0.13-0.17	0.0-2.9	.20	.24			
	17-26	4-10	1.35-1.70	0.60-2.00	0.10-0.14	0.0-2.9	.20	.24			
	26-37	15-27	1.35-1.70	0.60-2.00	0.15-0.17	0.0-2.9	.28	.32			
	37-80	5-14	1.55-1.75	0.60-2.00	0.10-0.15	0.0-2.9	.20	.28			
549B:											
Islandlake------	0-1	---	---	6.00-20.00	---	---	---	---	5	2	134
	1-2	0-9	1.30-1.45	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	2-8	0-9	1.30-1.55	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	8-9	0-9	1.40-1.65	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	9-41	0-5	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	41-80	0-9	1.55-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
549D:											
Islandlake------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	220
	1-2	0-9	1.30-1.45	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	2-8	0-9	1.30-1.55	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	8-9	0-9	1.40-1.65	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	9-41	0-5	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	41-80	0-9	1.55-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
549E:											
Islandlake------	0-1	---	---	6.00-20.00	---	---	---	---	5	2	134
	1-2	0-9	1.30-1.45	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	2-8	0-9	1.30-1.55	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	8-9	0-9	1.40-1.65	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	9-41	0-5	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	41-80	0-9	1.55-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
551B:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
551D:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
553:											
Carbondale------	0-38	---	0.20-0.30	0.20-6.00	0.35-0.45	0.0-2.9	---	---	5	8	0
	38-80	---	0.10-0.20	0.60-6.00	0.45-0.55	0.0-2.9	---	---			
Loxley----------	0-8	---	0.05-0.15	6.00-20.00	0.55-0.65	0.0-2.9	---	---	5	8	0
	8-80	---	0.13-0.23	0.20-6.00	0.35-0.45	0.0-2.9	---	---			
554B:											
Duck----------	0-1	---	---	0.60-2.00	---	---	---	---	5	3	86
	1-6	7-15	0.20-0.40	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37			
	6-15	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	15-80	0-2	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
Halfaday--------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-9	0-5	1.30-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	9-10	0-5	1.30-1.70	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	10-35	0-4	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	35-80	0-2	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
555D:											
Hiawatha--------	0-2	---	---	0.60-2.00	---	---	---	---	5	1	250
	2-6	5-15	---	0.60-2.00	0.05-0.07	0.0-2.9	.15	.15			
	6-80	0-5	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Deer Park-------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-3	0-5	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	3-10	0-10	1.20-1.50	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	10-21	0-10	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	21-80	0-10	1.50-1.60	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
557B:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
557D:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
558B:											
Islandlake------	0-1	---	---	6.00-20.00	---	---	---	---	5	2	134
	1-2	0-9	1.30-1.45	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	2-8	0-9	1.30-1.55	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	8-9	0-9	1.40-1.65	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	9-41	0-5	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	41-80	0-9	1.55-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
558D:											
Islandlake------	0-1	---	---	6.00-20.00	---	---	---	---	5	1	220
	1-2	0-9	1.30-1.45	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	2-8	0-9	1.30-1.55	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	8-9	0-9	1.40-1.65	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	9-41	0-5	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	41-80	0-9	1.55-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
559B:											
Kalkaska--------	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
560B:											
Islandlake------	0-1	---	---	6.00-20.00	---	---	---	---	5	2	134
	1-2	0-9	1.30-1.45	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	2-8	0-9	1.30-1.55	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	8-9	0-9	1.40-1.65	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	9-41	0-5	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	41-80	0-9	1.55-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
561A:											
Croswell--------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-15	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	15-22	0-10	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
	22-80	0-10	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
562B:											
Croswell--------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-15	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	15-22	0-10	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
	22-80	0-10	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
Kinross---------	0-3	---	0.10-0.35	6.00-20.00	0.35-0.45	---	---	---	3	2	134
	3-14	0-5	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	14-22	0-5	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	22-35	0-3	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	35-80	0-1	1.40-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
563B:											
Halfaday--------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-9	0-5	1.30-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	9-10	0-5	1.30-1.70	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	10-35	0-4	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	35-80	0-2	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
Kinross---------	0-3	---	0.10-0.35	6.00-20.00	0.35-0.45	---	---	---	3	2	134
	3-14	0-5	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	14-22	0-5	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	22-35	0-3	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	35-80	0-1	1.40-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15			
564A:											
Ingalls---------	0-1	---	---	6.00-20.00	0.35-0.45	---	---	---	5	2	134
	1-3	---	---	6.00-20.00	0.35-0.45	---	---	---			
	3-10	0-10	1.20-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	10-17	0-8	1.20-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	17-23	0-10	1.35-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	23-43	0-10	1.35-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	43-80	0-15	1.65-1.80	0.20-0.60	0.14-0.22	0.0-2.9	.43	.43			
565B:											
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
565D:											
Rubicon---------	0-2	---	---	6.00-20.00	---	---	---	---	5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
W. Water											

Table 17.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
10B:						
Amadon----------	0-2	3.5-5.0	50-90	---	---	---
	2-8	3.5-6.0	0.5-1.0	---	1.7-5.3	---
	8-10	3.5-6.0	2.0-5.0	---	3.0-14	---
	10-15	4.5-6.0	0.5-3.0	---	2.3-9.0	---
	15-80	---	---	---	---	---
Rock outcrop.						
11B:						
Kalkaska--------	0-1	3.6-5.0	50-90	---	---	---
	1-6	3.6-5.5	0.5-2.0	---	3.0-5.0	0
	6-8	3.6-5.5	2.0-5.0	---	1.0-3.0	0
	8-12	4.5-6.0	0.5-3.0	---	0.5-1.0	0
	12-23	4.5-6.0	0.0-0.5	---	0.1-0.5	0
	23-38	4.5-6.0	0.0-0.5	---	0.1-0.5	0
	38-80	4.5-6.5	0.0-0.5	---	0.1-0.5	0
12B:						
Rubicon---------	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
12D:						
Rubicon---------	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
12E:						
Rubicon---------	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
12F:						
Rubicon---------	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
13B:						
Kalkaska--------	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
13D:						
Kalkaska--------	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
13E:						
Kalkaska--------	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
13F:						
Kalkaska--------	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
16A:						
Paquin----------	0-2	3.5-5.0	50-90	---	---	---
	2-12	3.5-5.5	0.5-2.0	---	3.0-5.0	---
	12-14	3.5-5.5	2.0-5.0	---	1.0-4.0	---
	14-17	3.5-5.5	1.0-5.0	---	1.0-2.0	---
	17-27	3.5-5.5	1.0-5.0	---	1.0-2.0	---
	27-34	4.5-6.0	0.2-1.0	---	1.0-2.0	---
	34-80	4.5-6.5	0.0-0.5	3.0-5.0	---	---
17A:						
Au Gres---------	0-2	3.5-4.4	50-90	---	---	---
	2-7	3.5-6.0	0.1-1.0	---	0.2-7.0	---
	7-17	4.5-6.5	0.5-3.0	1.0-12	---	---
	17-28	4.5-6.5	0.0-0.5	---	1.0-7.0	---
	28-80	4.5-6.5	0.0-0.5	---	1.0-7.0	---
18:						
Kinross---------	0-3	3.4-5.0	75-90	---	100-180	0
	3-14	3.6-5.0	0.5-2.0	---	1.0-10	0
	14-22	3.6-6.0	2.0-5.0	---	1.0-10	0
	22-35	3.6-6.0	0.5-3.0	---	1.0-10	0
	35-80	4.5-6.5	0.0-0.5	---	1.0-2.0	0
19A:						
Au Gres---------	0-2	3.5-4.4	50-90	---	---	---
	2-7	3.5-6.0	0.1-1.0	---	0.2-7.0	---
	7-17	4.5-6.5	0.5-3.0	1.0-12	---	---
	17-28	4.5-6.5	0.0-0.5	---	1.0-7.0	---
	28-80	4.5-6.5	0.0-0.5	---	1.0-7.0	---
Deford----------	0-4	4.5-6.0	75-90	---	75-135	0
	4-80	5.1-7.8	0.0-0.5	---	0.0-5.3	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
20E:						
Rousseau--------	0-1	3.5-6.0	50-90	---	---	0
	1-4	3.5-6.0	0.1-1.0	---	0.2-8.0	0
	4-20	3.5-6.5	0.5-3.0	---	1.0-12	0
	20-33	3.5-6.5	0.0-0.5	---	0.0-7.0	0
	33-66	3.5-6.5	0.0-0.5	0.0-7.0	---	0
	66-80	3.5-6.5	0.0-0.5	0.0-7.0	---	0
Neconish--------	0-1	3.5-5.0	50-90	---	---	---
	1-8	3.5-5.0	0.5-2.0	---	0.7-5.3	0
	8-21	3.5-5.5	0.5-3.0	---	0.7-6.8	0
	21-32	4.5-6.0	0.0-0.5	---	0.0-3.0	0
	32-80	4.5-6.0	0.0-0.5	---	0.0-3.0	0
Finch----------	0-1	3.5-5.6	50-90	---	---	---
	1-11	3.5-6.0	0.5-2.0	---	0.0-4.0	---
	11-42	3.5-6.0	0.5-3.0	---	2.0-8.0	---
	42-80	5.1-6.5	0.0-0.5	0.0-1.0	---	---
21B:						
Garlic----------	0-2	3.5-5.6	50-90	---	---	---
	2-9	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	9-11	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	11-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-29	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	29-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---
21D:						
Garlic----------	0-2	3.5-5.6	50-90	---	---	---
	2-9	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	9-11	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	11-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-29	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	29-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---
21E:						
Garlic----------	0-2	3.5-5.6	50-90	---	---	---
	2-9	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	9-11	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	11-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-29	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	29-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---
22E:						
Rousseau--------	0-1	3.5-6.0	50-90	---	---	0
	1-4	3.5-6.0	0.1-1.0	---	0.2-8.0	0
	4-20	3.5-6.5	0.5-3.0	---	1.0-12	0
	20-33	3.5-6.5	0.0-0.5	---	0.0-7.0	0
	33-66	3.5-6.5	0.0-0.5	0.0-7.0	---	0
	66-80	3.5-6.5	0.0-0.5	0.0-7.0	---	0
Neconish--------	0-1	3.5-5.0	50-90	---	---	---
	1-8	3.5-5.0	0.5-2.0	---	0.7-5.3	0
	8-21	3.5-5.5	0.5-3.0	---	0.7-6.8	0
	21-32	4.5-6.0	0.0-0.5	---	0.0-3.0	0
	32-80	4.5-6.0	0.0-0.5	---	0.0-3.0	0
Deford----------	0-4	4.5-6.0	75-90	---	75-135	0
	4-80	5.1-7.8	0.0-0.5	---	0.0-5.3	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
24B:						
Rousseau--------	0-1	3.5-6.0	50-90	---	---	0
	1-4	3.5-6.0	0.1-1.0	---	0.2-8.0	0
	4-20	3.5-6.5	0.5-3.0	---	1.0-12	0
	20-33	3.5-6.5	0.0-0.5	---	0.0-7.0	0
	33-66	3.5-6.5	0.0-0.5	0.0-7.0	---	0
	66-80	3.5-6.5	0.0-0.5	0.0-7.0	---	0
24D:						
Rousseau--------	0-1	3.5-6.0	50-90	---	---	0
	1-4	3.5-6.0	0.1-1.0	---	0.2-8.0	0
	4-20	3.5-6.5	0.5-3.0	---	1.0-12	0
	20-33	3.5-6.5	0.0-0.5	---	0.0-7.0	0
	33-66	3.5-6.5	0.0-0.5	0.0-7.0	---	0
	66-80	3.5-6.5	0.0-0.5	0.0-7.0	---	0
24E:						
Rousseau--------	0-1	3.5-6.0	50-90	---	---	0
	1-4	3.5-6.0	0.1-1.0	---	0.2-8.0	0
	4-20	3.5-6.5	0.5-3.0	---	1.0-12	0
	20-33	3.5-6.5	0.0-0.5	---	0.0-7.0	0
	33-66	3.5-6.5	0.0-0.5	0.0-7.0	---	0
	66-80	3.5-6.5	0.0-0.5	0.0-7.0	---	0
25B:						
Proper----------	0-2	3.5-6.5	50-90	---	---	---
	2-11	3.5-5.5	0.1-1.0	---	0.2-8.0	0
	11-16	3.5-5.5	0.5-3.0	---	1.0-12	0
	16-21	4.5-7.3	0.5-3.0	---	1.0-12	0
	21-32	4.5-7.3	0.0-0.5	---	0.0-7.0	0
	32-80	4.5-7.3	0.0-0.5	---	0.0-7.0	0
26A:						
Spot----------	0-2	3.5-5.5	85-95	---	100-180	---
	2-8	3.5-6.0	0.1-1.0	---	0.2-8.0	0
	8-10	3.5-6.0	2.0-5.0	---	4.0-16	0
	10-18	3.5-6.0	0.5-3.0	---	1.0-12	0
	18-80	3.5-6.5	0.0-0.5	---	0.0-7.0	0
Finch----------	0-1	3.5-5.6	50-90	---	---	---
	1-11	3.5-6.0	0.5-2.0	---	0.0-4.0	---
	11-42	3.5-6.0	0.5-3.0	---	2.0-8.0	---
	42-80	5.1-6.5	0.0-0.5	0.0-1.0	---	---
27A:						
Hendrie---------	0-4	4.5-6.0	85-95	---	100-180	---
	4-7	4.5-6.0	0.5-2.0	---	1.0-4.0	---
	7-16	6.1-7.3	0.5-2.0	3.0-7.0	---	---
	16-80	7.4-8.4	0.0-0.5	1.0-4.0	---	---
Annanias--------	0-4	3.5-5.0	50-90	---	---	---
	4-7	3.5-5.0	0.5-2.0	---	1.0-4.0	---
	7-10	3.5-5.0	2.0-5.0	---	3.0-7.0	---
	10-15	3.5-5.0	0.5-3.0	---	3.0-7.0	---
	15-26	3.5-5.0	0.0-0.5	---	1.0-4.0	---
	26-47	4.5-5.5	0.0-0.5	---	1.0-4.0	---
	47-80	4.5-7.0	0.0-0.5	---	1.0-4.0	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
30:						
Hendrie---------	0-4	4.5-6.0	85-95	---	100-180	---
	4-7	4.5-6.0	0.5-2.0	---	1.0-4.0	---
	7-16	6.1-7.3	0.5-2.0	3.0-7.0	---	---
	16-80	7.4-8.4	0.0-0.5	1.0-4.0	---	---
33. Pits, sand and gravel						
34B:						
Liminga---------	0-1	3.5-5.0	50-90	---	---	---
	1-7	3.5-6.0	0.5-2.0	---	3.0-5.0	0
	7-9	3.5-6.0	2.0-5.0	---	4.0-9.0	0
	9-22	3.5-6.0	0.5-3.0	---	3.0-5.0	0
	22-31	3.5-6.0	0.0-0.5	---	3.0-5.0	0
	31-80	3.5-6.5	0.0-0.5	---	0.2-4.0	0
34E:						
Liminga---------	0-1	3.5-5.0	50-90	---	---	---
	1-7	3.5-6.0	0.5-2.0	---	3.0-5.0	0
	7-9	3.5-6.0	2.0-5.0	---	4.0-9.0	0
	9-22	3.5-6.0	0.5-3.0	---	3.0-5.0	0
	22-31	3.5-6.0	0.0-0.5	---	3.0-5.0	0
	31-80	3.5-6.5	0.0-0.5	---	0.2-4.0	0
36:						
Carbondale------	0-38	5.1-7.3	75-90	100-180	---	---
	38-80	5.1-7.3	90-95	100-180	---	---
Lupton----------	0-4	4.5-7.8	85-95	100-180	---	0
	4-80	4.5-7.8	80-95	100-180	---	0
Tawas-----------	0-26	4.5-6.5	75-90	---	100-180	0
	26-80	5.1-6.5	0.0-0.5	1.0-2.0	---	0
37:						
Dawson----------	0-10	3.0-4.4	85-95	---	100-180	0
	10-38	3.0-4.4	80-95	---	100-180	0
	38-80	3.0-6.5	0.0-0.5	---	0.2-7.0	0
Greenwood-------	0-65	3.5-4.4	85-95	---	100-180	0
	65-80	3.5-4.4	80-95	---	100-180	0
Loxley----------	0-8	3.5-4.4	85-95	---	100-180	0
	8-80	3.5-4.4	80-95	---	100-180	0
43:						
Ensley----------	0-5	6.1-7.8	50-90	100-180	---	---
	5-7	6.1-7.3	10-50	22-116	---	0
	7-19	6.6-7.8	0.5-1.0	1.0-14	---	0
	19-80	6.6-7.8	0.0-0.5	2.0-13	---	10-20
56B:						
Shuberts--------	0-6	4.5-6.5	50-90	---	---	---
	6-25	6.6-7.3	0.0-0.5	0.0-10	---	0
	25-80	---	---	---	---	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
56B:						
Wurtsmith-------	0-2	3.5-6.5	2.0-5.0	---	3.0-9.7	0
	2-7	3.5-6.5	0.5-2.0	---	0.7-5.3	0
	7-15	3.5-6.5	0.5-1.0	---	0.7-3.7	0
	15-26	3.5-6.5	0.5-1.0	---	0.7-3.7	0
	26-80	3.5-7.8	0.0-0.5	0.0-4.0	---	0
Meehan----------	0-3	3.5-5.0	50-90	---	---	---
	3-7	3.5-6.0	0.1-1.0	---	0.2-7.0	0
	7-11	4.0-6.0	0.5-1.0	---	1.0-12	0
	11-23	5.1-6.5	0.0-0.5	0.0-7.0	---	0
	23-80	5.1-6.5	0.0-0.5	0.0-7.0	---	0
61A:						
Ingalls---------	0-1	3.5-5.0	50-90	---	---	---
	1-3	3.5-5.0	50-90	120-180	---	---
	3-10	3.5-5.5	0.5-2.0	---	1.0-4.0	---
	10-17	3.5-5.8	2.0-5.0	---	4.0-20	---
	17-23	3.5-6.0	2.0-5.0	---	4.0-16	---
	23-43	3.5-6.0	0.5-2.0	---	1.0-8.0	---
	43-80	5.6-7.8	0.0-0.5	1.0-9.0	---	---
Caffey----------	0-6	4.5-6.5	50-90	---	---	---
	6-12	4.5-6.5	0.5-1.0	1.0-5.0	---	0
	12-21	4.5-6.5	0.0-0.5	1.0-5.0	---	0
	21-35	7.4-8.4	0.0-0.5	2.0-10	---	0
	35-80	7.4-8.4	0.0-0.5	2.0-10	---	10-30
62B:						
McMillan--------	0-1	3.5-5.0	50-90	---	---	---
	1-4	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	4-6	3.5-5.0	0.5-2.0	---	1.0-2.0	---
	6-9	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	9-16	3.5-5.0	0.5-3.0	---	1.0-4.0	---
	16-22	3.5-5.0	0.5-3.0	---	1.0-2.0	---
	22-32	3.5-5.5	0.0-0.5	---	1.0-2.0	---
	32-80	3.5-5.5	0.0-0.5	---	1.0-2.0	---
Greylock--------	0-1	5.1-6.0	50-90	---	---	---
	1-6	5.1-6.0	2.0-5.0	5.0-14	---	0
	6-7	5.1-6.0	0.5-2.0	2.0-8.0	---	0
	7-9	5.1-6.0	0.5-5.0	3.0-16	---	0
	9-19	5.1-6.0	0.5-5.0	3.0-16	---	0
	19-26	6.1-7.3	0.0-0.5	4.0-12	---	0
	26-34	6.1-7.3	0.0-0.5	4.0-12	---	0
	34-80	7.4-8.4	0.0-0.5	3.0-9.0	---	10-30
62D:						
McMillan--------	0-1	3.5-5.0	50-90	---	---	---
	1-4	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	4-6	3.5-5.0	0.5-2.0	---	1.0-2.0	---
	6-9	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	9-16	3.5-5.0	0.5-3.0	---	1.0-4.0	---
	16-22	3.5-5.0	0.5-3.0	---	1.0-2.0	---
	22-32	3.5-5.5	0.0-0.5	---	1.0-2.0	---
	32-80	3.5-5.5	0.0-0.5	---	1.0-2.0	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
62D:						
Greylock--------	0-1	5.1-6.0	50-90	---	---	---
	1-6	5.1-6.0	2.0-5.0	5.0-14	---	0
	6-7	5.1-6.0	0.5-2.0	2.0-8.0	---	0
	7-9	5.1-6.0	0.5-5.0	3.0-16	---	0
	9-19	5.1-6.0	0.5-5.0	3.0-16	---	0
	19-26	6.1-7.3	0.0-0.5	4.0-12	---	0
	26-34	6.1-7.3	0.0-0.5	4.0-12	---	0
	34-80	7.4-8.4	0.0-0.5	3.0-9.0	---	10-30
62E:						
Greylock--------	0-1	5.1-6.0	50-90	---	---	---
	1-6	5.1-6.0	2.0-5.0	5.0-14	---	0
	6-7	5.1-6.0	0.5-2.0	2.0-8.0	---	0
	7-9	5.1-6.0	0.5-5.0	3.0-16	---	0
	9-19	5.1-6.0	0.5-5.0	3.0-16	---	0
	19-26	6.1-7.3	0.0-0.5	4.0-12	---	0
	26-34	6.1-7.3	0.0-0.5	4.0-12	---	0
	34-80	7.4-8.4	0.0-0.5	3.0-9.0	---	10-30
McMillan--------	0-1	3.5-5.0	50-90	---	---	---
	1-4	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	4-6	3.5-5.0	0.5-2.0	---	1.0-2.0	---
	6-9	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	9-16	3.5-5.0	0.5-3.0	---	1.0-4.0	---
	16-22	3.5-5.0	0.5-3.0	---	1.0-2.0	---
	22-32	3.5-5.5	0.0-0.5	---	1.0-2.0	---
	32-80	3.5-5.5	0.0-0.5	---	1.0-2.0	---
63:						
Deford----------	0-4	4.5-6.0	75-90	---	75-135	0
	4-80	5.1-7.8	0.0-0.5	---	0.0-5.3	0
65:						
Ausable, frequently flooded--------	0-9	6.1-7.8	50-90	100-180	---	0
	9-35	6.1-7.8	0.0-30	0.0-63	---	0
	35-45	6.1-7.8	50-90	100-180	---	0
	45-80	6.1-7.8	0.0-0.5	0.0-4.0	---	0
Deford, frequently flooded--------	0-4	4.5-6.0	75-90	---	75-135	0
	4-80	5.1-7.8	0.0-0.5	---	0.0-5.3	0
Tawas, frequently flooded--------	0-26	4.5-6.5	75-90	---	100-180	0
	26-80	5.1-6.5	0.0-0.5	1.0-2.0	---	0
66:						
Markey----------	0-3	4.5-6.0	85-95	---	100-180	---
	3-20	4.5-6.5	80-95	100-180	---	---
	20-80	4.5-7.8	0.0-0.5	0.0-0.5	---	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
67B:						
Pelkie, occasionally flooded--------	0-4	4.5-6.5	2.0-5.0	4.0-18	---	0
	4-38	4.5-6.5	0.5-1.0	1.0-11	---	0
	38-80	4.5-6.5	0.0-0.5	0.0-7.0	---	0
Deford, frequently flooded--------	0-4	4.5-6.0	75-90	---	75-135	0
	4-80	5.1-7.8	0.0-0.5	---	0.0-5.3	0
68F:						
Deer Park-------	0-2	3.5-6.0	50-90	---	---	---
	2-3	3.5-6.0	2.0-5.0	---	2.5-4.2	0
	3-10	3.5-6.0	0.5-2.0	---	0.0-1.4	0
	10-21	3.5-6.5	0.5-3.0	---	0.0-1.4	0
	21-80	3.5-6.5	0.0-0.5	---	0.0-1.4	0
69:						
Ruse----------	0-7	6.1-7.8	10-30	20-72	---	---
	7-11	6.1-8.4	2.0-5.0	4.0-22	---	10-30
	11-15	6.1-8.4	0.5-1.0	1.0-14	---	10-30
	15-80	---	---	---	---	---
70F:						
Deer Park-------	0-2	3.5-6.0	50-90	---	---	---
	2-3	3.5-6.0	2.0-5.0	---	2.5-4.2	0
	3-10	3.5-6.0	0.5-2.0	---	0.0-1.4	0
	10-21	3.5-6.5	0.5-3.0	---	0.0-1.4	0
	21-80	3.5-6.5	0.0-0.5	---	0.0-1.4	0
Deford----------	0-4	4.5-6.0	75-90	---	75-135	0
	4-80	5.1-7.8	0.0-0.5	---	0.0-5.3	0
Tawas----------	0-26	4.5-6.5	75-90	---	100-180	0
	26-80	5.1-6.5	0.0-0.5	1.0-2.0	---	0
72:						
Spot----------	0-2	3.5-5.5	85-95	---	100-180	---
	2-8	3.5-6.0	0.1-1.0	---	0.2-8.0	0
	8-10	3.5-6.0	2.0-5.0	---	4.0-16	0
	10-18	3.5-6.0	0.5-3.0	---	1.0-12	0
	18-80	3.5-6.5	0.0-0.5	---	0.0-7.0	0
73B:						
Graveraet-------	0-1	4.0-5.5	50-90	---	---	---
	1-4	4.5-6.0	2.0-5.0	---	8.0-9.0	---
	4-7	4.5-6.0	0.5-2.0	---	3.0-4.0	---
	7-10	4.5-6.5	2.0-5.0	---	8.0-9.0	---
	10-17	4.5-6.5	0.5-3.0	---	8.0-9.0	---
	17-33	5.1-6.5	0.0-0.5	1.0-3.0	---	---
	33-48	5.1-7.2	0.0-0.5	8.0-12	---	---
	48-68	5.1-7.2	0.0-0.5	8.0-12	---	---
	68-80	7.2-8.0	0.0-0.5	3.0-4.0	---	10-30

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
73B:						
Gulliver--------	0-4	4.5-6.0	1.0-3.0	4.0-18	---	---
	4-9	4.5-6.0	0.1-0.5	2.2-10	---	---
	9-12	4.5-6.0	2.0-6.0	6.0-18	---	---
	12-19	4.5-6.0	0.5-3.0	3.0-12	---	---
	19-24	6.1-7.8	0.1-0.5	2.2-12	---	---
	24-30	6.6-7.8	0.1-0.5	2.2-12	---	0
	30-58	7.4-8.4	0.1-0.5	2.2-12	---	10-30
	58-80	---	---	---	---	---
76A:						
Shuberts--------	0-6	4.5-6.5	50-90	---	---	---
	6-25	6.6-7.3	0.0-0.5	0.0-10	---	0
	25-80	---	---	---	---	---
Manistique------	0-2	5.1-7.8	1.0-12	4.0-18	---	0
	2-12	5.1-7.8	0.0-1.0	0.2-8.0	---	0
	12-24	6.1-7.8	0.0-1.0	1.0-8.0	---	0
	24-28	6.6-8.4	0.0-1.0	0.0-7.0	---	0
	28-80	---	---	---	---	---
78B:						
Heinz----------	0-1	4.4-5.5	50-90	---	---	---
	1-5	5.1-6.0	2.0-5.0	5.0-15	---	---
	5-6	5.1-6.0	0.5-2.0	1.0-5.0	---	---
	6-8	5.1-6.0	2.0-5.0	2.0-10	---	---
	8-25	5.1-6.5	0.5-3.0	1.0-5.0	---	---
	25-80	7.4-8.4	0.0-0.5	1.0-4.0	---	10-25
80F:						
Deer Park-------	0-2	3.5-6.0	50-90	---	---	---
	2-3	3.5-6.0	2.0-5.0	---	2.5-4.2	0
	3-10	3.5-6.0	0.5-2.0	---	0.0-1.4	0
	10-21	3.5-6.5	0.5-3.0	---	0.0-1.4	0
	21-80	3.5-6.5	0.0-0.5	---	0.0-1.4	0
Dawson----------	0-10	3.0-4.4	85-95	---	100-180	0
	10-38	3.0-4.4	80-95	---	100-180	0
	38-80	3.0-6.5	0.0-0.5	---	0.2-7.0	0
Wainola---------	0-2	4.5-6.5	50-90	---	---	---
	2-12	4.5-6.5	0.5-2.0	---	0.7-5.2	---
	12-18	4.5-6.5	0.5-3.0	---	0.7-6.7	---
	18-27	4.5-6.5	0.5-3.0	---	0.7-6.7	---
	27-41	4.5-6.5	0.0-0.5	---	0.0-3.0	---
	41-80	4.5-6.5	0.0-0.5	---	0.0-3.0	---
84:						
Dawson----------	0-10	3.0-4.4	85-95	---	100-180	0
	10-38	3.0-4.4	80-95	---	100-180	0
	38-80	3.0-6.5	0.0-0.5	---	0.2-7.0	0
Kinross---------	0-3	3.4-5.0	75-90	---	100-180	0
	3-14	3.6-5.0	0.5-2.0	---	1.0-10	0
	14-22	3.6-6.0	2.0-5.0	---	1.0-10	0
	22-35	3.6-6.0	0.5-3.0	---	1.0-10	0
	35-80	4.5-6.5	0.0-0.5	---	1.0-2.0	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
86B:						
Wurtsmith-------	0-2	3.5-6.5	2.0-5.0	---	3.0-9.7	0
	2-7	3.5-6.5	0.5-2.0	---	0.7-5.3	0
	7-15	3.5-6.5	0.5-1.0	---	0.7-3.7	0
	15-26	3.5-6.5	0.5-1.0	---	0.7-3.7	0
	26-80	3.5-7.8	0.0-0.5	0.0-4.0	---	0
Tawas-----------	0-26	4.5-6.5	75-90	---	100-180	0
	26-80	5.1-6.5	0.0-0.5	1.0-2.0	---	0
Deford----------	0-4	4.5-6.0	75-90	---	75-135	0
	4-80	5.1-7.8	0.0-0.5	---	0.0-5.3	0
87B:						
Longrie---------	0-1	4.5-5.5	50-90	---	---	---
	1-2	4.5-5.5	50-90	---	---	---
	2-6	5.1-6.0	0.5-2.0	---	0.8-7.5	0
	6-8	3.5-6.0	2.0-5.0	---	3.0-14	---
	8-23	5.1-6.5	0.5-3.0	---	0.8-9.0	0
	23-36	6.6-7.8	0.0-0.5	0.0-7.0	---	0
	36-80	---	---	---	---	---
Amadon----------	0-2	3.5-5.0	50-90	---	---	---
	2-8	3.5-6.0	0.5-1.0	---	1.7-5.3	---
	8-10	3.5-6.0	2.0-5.0	---	3.0-14	---
	10-15	4.5-6.0	0.5-3.0	---	2.3-9.0	---
	15-80	---	---	---	---	---
87D:						
Amadon----------	0-2	3.5-5.0	50-90	---	---	---
	2-8	3.5-6.0	0.5-1.0	---	1.7-5.3	---
	8-10	3.5-6.0	2.0-5.0	---	3.0-14	---
	10-15	4.5-6.0	0.5-3.0	---	2.3-9.0	---
	15-80	---	---	---	---	---
Longrie---------	0-1	4.5-5.5	50-90	---	---	---
	1-2	4.5-5.5	50-90	---	---	---
	2-6	5.1-6.0	0.5-2.0	---	0.8-7.5	0
	6-8	3.5-6.0	2.0-5.0	---	3.0-14	---
	8-23	5.1-6.5	0.5-3.0	---	0.8-9.0	0
	23-36	6.6-7.8	0.0-0.5	0.0-7.0	---	0
	36-80	---	---	---	---	---
87E:						
Amadon----------	0-2	3.5-5.0	50-90	---	---	---
	2-8	3.5-6.0	0.5-1.0	---	1.7-5.3	---
	8-10	3.5-6.0	2.0-5.0	---	3.0-14	---
	10-15	4.5-6.0	0.5-3.0	---	2.3-9.0	---
	15-80	---	---	---	---	---
Longrie---------	0-1	4.5-5.5	50-90	---	---	---
	1-2	4.5-5.5	50-90	---	---	---
	2-6	5.1-6.0	0.5-2.0	---	0.8-7.5	0
	6-8	3.5-6.0	2.0-5.0	---	3.0-14	---
	8-23	5.1-6.5	0.5-3.0	---	0.8-9.0	0
	23-36	6.6-7.8	0.0-0.5	0.0-7.0	---	0
	36-80	---	---	---	---	---
Rock outcrop.						

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
88B:						
Cookson---------	0-3	4.5-6.0	50-90	100-180	---	---
	3-7	4.5-6.0	0.1-2.0	0.2-15	---	0
	7-11	4.5-6.0	2.0-5.0	4.0-21	---	0
	11-16	4.5-6.0	0.5-3.4	1.0-18	---	0
	16-21	5.6-7.3	0.0-1.0	0.0-13	---	0
	21-31	6.6-7.8	0.0-1.0	2.0-13	---	0-30
	31-36	7.4-8.4	0.0-0.5	0.0-12	---	0-30
	36-80	---	---	---	---	---
Amadon----------	0-2	3.5-5.0	50-90	---	---	---
	2-8	3.5-6.0	0.5-1.0	---	1.7-5.3	---
	8-10	3.5-6.0	2.0-5.0	---	3.0-14	---
	10-15	4.5-6.0	0.5-3.0	---	2.3-9.0	---
	15-80	---	---	---	---	---
89B:						
Cookson---------	0-3	4.5-6.0	50-90	100-180	---	---
	3-7	4.5-6.0	0.1-2.0	0.2-15	---	0
	7-11	4.5-6.0	2.0-5.0	4.0-21	---	0
	11-16	4.5-6.0	0.5-3.4	1.0-18	---	0
	16-21	5.6-7.3	0.0-1.0	0.0-13	---	0
	21-31	6.6-7.8	0.0-1.0	2.0-13	---	0-30
	31-36	7.4-8.4	0.0-0.5	0.0-12	---	0-30
	36-80	---	---	---	---	---
Trenary---------	0-2	4.5-6.5	2.0-5.0	4.0-18	---	0
	2-6	4.5-6.5	0.5-2.0	1.0-12	---	0
	6-12	4.5-6.0	2.0-5.0	---	2.0-16	0
	12-17	4.5-5.5	0.5-3.0	---	2.0-16	0
	17-26	5.1-6.5	0.5-2.0	---	1.0-10	0
	26-37	5.1-7.8	0.0-0.5	4.0-12	---	0
	37-80	6.6-8.4	0.0-0.5	2.0-9.0	---	10-30
90:						
Chippeny--------	0-20	5.6-7.8	75-90	100-180	---	---
	20-28	6.6-9.0	0.0-0.5	2.0-24	---	10-30
	28-80	---	---	---	---	---
91:						
Cathro----------	0-34	4.5-7.8	50-90	100-180	---	---
	34-80	5.6-8.4	0.0-0.5	2.0-12	---	10-30
Lupton----------	0-4	4.5-7.8	85-95	100-180	---	0
	4-80	4.5-7.8	80-95	100-180	---	0
93A:						
Ruse----------	0-7	6.1-7.8	10-30	20-72	---	---
	7-11	6.1-8.4	2.0-5.0	4.0-22	---	10-30
	11-15	6.1-8.4	0.5-1.0	1.0-14	---	10-30
	15-80	---	---	---	---	---
Ensign----------	0-1	6.1-7.8	50-90	---	---	---
	1-5	6.1-7.8	2.0-5.0	6.0-14	---	---
	5-8	6.1-7.8	0.5-3.0	---	---	---
	8-15	6.1-8.4	0.5-1.0	---	---	---
	15-80	---	---	---	---	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
98B:						
Guardlake-------	0-1	5.1-6.0	50-90	---	---	---
	1-2	5.1-6.0	2.0-5.0	---	3.0-14	0
	2-4	5.1-6.0	0.5-2.0	---	0.8-9.8	0
	4-13	5.1-6.0	2.0-5.0	---	3.0-14	0
	13-80	7.9-8.4	0.0-0.5	0.0-7.0	---	0-20
98D:						
Guardlake-------	0-1	5.1-6.0	50-90	---	---	---
	1-2	5.1-6.0	2.0-5.0	---	3.0-14	0
	2-4	5.1-6.0	0.5-2.0	---	0.8-9.8	0
	4-13	5.1-6.0	2.0-5.0	---	3.0-14	0
	13-80	7.9-8.4	0.0-0.5	0.0-7.0	---	0-20
98E:						
Guardlake-------	0-1	5.1-6.0	50-90	---	---	---
	1-2	5.1-6.0	2.0-5.0	---	3.0-14	0
	2-4	5.1-6.0	0.5-2.0	---	0.8-9.8	0
	4-13	5.1-6.0	2.0-5.0	---	3.0-14	0
	13-80	7.9-8.4	0.0-0.5	0.0-7.0	---	0-20
116F:						
Udipsamments----	0-80	---	0.5-1.0	---	---	---
Udorthents------	0-80	---	---	---	---	---
119. Landfill						
120A:						
Charlevoix------	0-2	4.5-6.0	50-90	---	---	---
	2-5	3.5-6.0	0.5-2.0	1.0-7.0	0.6-5.0	0
	5-7	3.5-6.0	0.5-3.0	1.5-9.0	0.8-7.0	0
	7-12	3.5-6.0	0.5-3.0	1.0-9.0	0.6-7.0	0
	12-16	3.5-6.0	0.0-0.5	1.0-9.0	0.6-7.0	0
	16-27	5.1-7.3	0.0-0.5	4.0-13	2.0-10	0
	27-80	7.4-8.4	0.0-0.5	2.0-13	---	10-30
Ensley----------	0-5	6.1-7.8	50-90	100-180	---	---
	5-7	6.1-7.3	10-50	22-116	---	0
	7-19	6.6-7.8	0.5-1.0	1.0-14	---	0
	19-80	6.6-7.8	0.0-0.5	2.0-13	---	10-20
122A:						
Wormet----------	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.5-2.0	---	1.0-5.0	---
	5-7	4.5-6.0	2.0-5.0	---	2.0-9.0	---
	7-12	4.5-6.0	0.5-3.0	---	2.0-9.0	---
	12-23	4.5-6.0	0.5-3.0	---	1.0-4.0	---
	23-80	5.0-6.5	0.0-0.5	---	1.0-4.0	---
123:						
Minocqua--------	0-5	4.5-6.5	50-90	---	---	---
	5-7	4.5-7.8	2.0-5.0	---	3.0-12	0
	7-18	4.5-7.8	2.0-5.0	---	3.0-12	0
	18-23	4.5-7.8	0.5-1.0	---	0.7-6.0	0
	23-80	4.5-7.8	0.0-0.5	---	0.0-3.0	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
125B:						
Stutts----------	0-1	3.5-5.0	50-90	---	---	0
	1-2	3.5-5.5	2.0-5.0	---	2.0-8.0	0
	2-7	3.5-5.5	0.5-2.0	---	2.0-6.0	0
	7-9	3.5-5.5	2.0-5.0	---	2.0-12	0
	9-13	4.5-6.0	0.5-3.0	---	1.8-6.2	0
	13-19	4.5-6.0	0.5-3.0	---	1.8-6.2	0
	19-80	4.5-6.5	0.0-0.5	---	0.0-2.0	0
Kalkaska--------	0-1	3.6-5.0	50-90	---	---	---
	1-6	3.6-5.5	0.5-2.0	---	3.0-5.0	0
	6-8	3.6-5.5	2.0-5.0	---	1.0-3.0	0
	8-12	4.5-6.0	0.5-3.0	---	0.5-1.0	0
	12-23	4.5-6.0	0.0-0.5	---	0.1-0.5	0
	23-38	4.5-6.0	0.0-0.5	---	0.1-0.5	0
	38-80	4.5-6.5	0.0-0.5	---	0.1-0.5	0
125D:						
Stutts----------	0-1	3.5-5.0	50-90	---	---	0
	1-2	3.5-5.5	2.0-5.0	---	2.0-8.0	0
	2-7	3.5-5.5	0.5-2.0	---	2.0-6.0	0
	7-9	3.5-5.5	2.0-5.0	---	2.0-12	0
	9-13	4.5-6.0	0.5-3.0	---	1.8-6.2	0
	13-19	4.5-6.0	0.5-3.0	---	1.8-6.2	0
	19-80	4.5-6.5	0.0-0.5	---	0.0-2.0	0
Kalkaska--------	0-1	3.6-5.0	50-90	---	---	---
	1-6	3.6-5.5	0.5-2.0	---	3.0-5.0	0
	6-8	3.6-5.5	2.0-5.0	---	1.0-3.0	0
	8-12	4.5-6.0	0.5-3.0	---	0.5-1.0	0
	12-23	4.5-6.0	0.0-0.5	---	0.1-0.5	0
	23-38	4.5-6.0	0.0-0.5	---	0.1-0.5	0
	38-80	4.5-6.5	0.0-0.5	---	0.1-0.5	0
125E:						
Stutts----------	0-1	3.5-5.0	50-90	---	---	0
	1-2	3.5-5.5	2.0-5.0	---	2.0-8.0	0
	2-7	3.5-5.5	0.5-2.0	---	2.0-6.0	0
	7-9	3.5-5.5	2.0-5.0	---	2.0-12	0
	9-13	4.5-6.0	0.5-3.0	---	1.8-6.2	0
	13-19	4.5-6.0	0.5-3.0	---	1.8-6.2	0
	19-80	4.5-6.5	0.0-0.5	---	0.0-2.0	0
Kalkaska--------	0-1	3.6-5.0	50-90	---	---	---
	1-6	3.6-5.5	0.5-2.0	---	3.0-5.0	0
	6-8	3.6-5.5	2.0-5.0	---	1.0-3.0	0
	8-12	4.5-6.0	0.5-3.0	---	0.5-1.0	0
	12-23	4.5-6.0	0.0-0.5	---	0.1-0.5	0
	23-38	4.5-6.0	0.0-0.5	---	0.1-0.5	0
	38-80	4.5-6.5	0.0-0.5	---	0.1-0.5	0
131B:						
Furlong---------	0-1	4.0-5.5	50-90	---	---	---
	1-2	4.0-5.5	2.0-5.0	---	4.0-13	0
	2-5	4.0-5.5	0.5-2.0	---	0.0-8.0	0
	5-7	4.0-5.5	2.0-5.0	---	4.0-16	0
	7-19	4.0-5.5	0.5-3.0	---	1.0-12	0
	19-22	6.6-8.0	0.0-0.5	0.0-4.0	---	0
	22-80	---	---	---	---	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
131B:						
Shingleton------	0-1	4.5-6.0	1.0-3.0	---	0.8-7.5	0
	1-7	4.5-6.0	0.5-2.0	---	0.8-7.5	0
	7-8	4.5-6.0	2.0-5.0	---	3.0-12	0
	8-11	4.5-6.0	0.5-3.0	---	0.8-9.0	0
	11-80	---	---	---	---	---
141A:						
Halfaday--------	0-2	4.5-5.0	50-90	---	---	---
	2-9	3.5-6.0	0.5-2.0	---	1.0-4.0	0
	9-10	3.5-6.0	2.0-5.0	---	4.0-12	0
	10-35	3.5-6.0	0.5-3.0	---	---	0
	35-80	5.1-6.5	0.0-0.5	0.0-1.0	---	0
145B:						
Noseum----------	0-2	3.5-5.5	50-90	---	---	---
	2-5	3.5-6.0	0.5-2.0	---	1.0-5.0	---
	5-7	3.5-6.0	2.0-5.0	---	2.0-9.0	---
	7-19	3.5-6.0	0.5-3.0	---	2.0-9.0	---
	19-27	3.5-6.0	0.5-3.0	---	1.0-4.0	---
	27-80	3.5-6.0	0.0-0.5	---	1.0-4.0	---
155B:						
Karlin----------	0-3	4.5-6.5	2.0-5.0	---	3.0-12	0
	3-7	4.5-6.5	0.5-2.0	---	0.7-8.0	0
	7-17	4.5-6.5	0.5-3.0	---	0.7-6.0	0
	17-31	4.5-6.5	0.0-0.5	---	0.0-3.0	0
	31-80	5.1-7.3	0.0-0.5	0.0-4.0	---	0
160B:						
Paquin----------	0-2	3.5-5.0	50-90	---	---	---
	2-12	3.5-5.5	0.5-2.0	---	3.0-5.0	---
	12-14	3.5-5.5	2.0-5.0	---	1.0-4.0	---
	14-17	3.5-5.5	1.0-5.0	---	1.0-2.0	---
	17-27	3.5-5.5	1.0-5.0	---	1.0-2.0	---
	27-34	4.5-6.0	0.2-1.0	---	1.0-2.0	---
	34-80	4.5-6.5	0.0-0.5	3.0-5.0	---	---
Finch----------	0-1	3.5-5.6	50-90	---	---	---
	1-11	3.5-6.0	0.5-2.0	---	0.0-4.0	---
	11-42	3.5-6.0	0.5-3.0	---	2.0-8.0	---
	42-80	5.1-6.5	0.0-0.5	0.0-1.0	---	---
218. Pits, quarry						
219B:						
Cublake---------	0-3	3.5-6.0	2.0-5.0	---	3.0-12	0
	3-4	3.5-6.0	0.5-2.0	---	0.7-7.0	0
	4-23	3.5-6.5	0.5-3.0	---	0.7-8.0	0
	23-32	3.5-7.3	0.0-0.5	0.0-7.0	---	0
	32-48	3.5-7.3	0.0-0.5	0.0-7.0	---	0
	48-80	5.1-7.3	0.0-0.5	---	0.0-16	0
222:						
Histosols-------	0-51	---	75-90	---	---	---
	51-80	---	---	---	---	---
Aquents---------	0-80	---	---	---	---	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
225B:						
Cusino----------	0-2	3.5-5.0	50-90	---	100-180	---
	2-8	3.5-5.0	0.5-2.0	---	1.0-5.0	---
	8-10	3.5-5.5	2.0-5.0	---	4.0-15	---
	10-17	3.5-5.5	0.5-2.0	---	1.0-6.0	---
	17-80	4.5-6.0	0.0-0.5	---	---	---
248B:						
Escanaba--------	0-1	5.1-6.0	50-90	---	---	---
	1-3	5.1-6.0	2.0-5.0	4.0-12	---	0
	3-6	5.1-6.0	0.5-2.0	4.0-12	---	0
	6-26	5.1-6.0	0.5-3.0	1.0-10	---	0
	26-35	6.1-7.3	0.0-0.5	3.0-9.0	---	0
	35-42	6.1-7.3	0.0-0.5	6.0-12	---	0
	42-80	6.6-7.8	0.0-0.5	3.0-9.0	---	10-30
Greylock--------	0-1	5.1-6.0	50-90	---	---	---
	1-6	5.1-6.0	2.0-5.0	5.0-14	---	0
	6-7	5.1-6.0	0.5-2.0	2.0-8.0	---	0
	7-9	5.1-6.0	0.5-5.0	3.0-16	---	0
	9-19	5.1-6.0	0.5-5.0	3.0-16	---	0
	19-26	6.1-7.3	0.0-0.5	4.0-12	---	0
	26-34	6.1-7.3	0.0-0.5	4.0-12	---	0
	34-80	7.4-8.4	0.0-0.5	3.0-9.0	---	10-30
249A:						
Iosco----------	0-6	4.5-6.0	50-90	---	---	---
	6-11	4.8-6.0	0.5-2.0	2.0-10	---	0
	11-27	5.1-6.5	0.0-1.0	2.0-10	---	0
	27-38	5.5-6.5	0.0-0.5	4.0-10	---	3-6
	38-80	7.5-8.4	0.0-0.5	8.0-20	---	15-30
267A:						
Finch----------	0-1	3.5-5.6	50-90	---	---	---
	1-11	3.5-6.0	0.5-2.0	---	0.0-4.0	---
	11-42	3.5-6.0	0.5-3.0	---	2.0-8.0	---
	42-80	5.1-6.5	0.0-0.5	0.0-1.0	---	---
287B:						
Hiawatha--------	0-2	4.5-5.5	50-90	---	---	---
	2-6	4.5-5.5	2.0-5.0	---	---	---
	6-80	4.5-6.0	0.0-0.5	---	---	---
289B:						
Wallace---------	0-2	3.5-5.5	50-90	---	---	---
	2-10	3.5-5.5	0.5-2.0	---	2.0-4.0	---
	10-11	4.0-5.5	2.0-5.0	---	1.0-4.0	---
	11-21	4.5-5.5	2.0-5.0	---	1.0-4.0	---
	21-26	4.5-5.5	0.5-3.0	---	1.0-4.0	---
	26-59	4.5-6.0	0.0-0.5	1.0-4.0	---	---
	59-80	4.5-6.5	0.0-0.5	1.0-4.0	---	---
289D:						
Wallace---------	0-2	3.5-5.5	50-90	---	---	---
	2-10	3.5-5.5	0.5-2.0	---	2.0-4.0	---
	10-11	4.0-5.5	2.0-5.0	---	1.0-4.0	---
	11-21	4.5-5.5	2.0-5.0	---	1.0-4.0	---
	21-26	4.5-5.5	0.5-3.0	---	1.0-4.0	---
	26-59	4.5-6.0	0.0-0.5	1.0-4.0	---	---
	59-80	4.5-6.5	0.0-0.5	1.0-4.0	---	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
289E:						
Wallace---------	0-2	3.5-5.5	50-90	---	---	---
	2-10	3.5-5.5	0.5-2.0	---	2.0-4.0	---
	10-11	4.0-5.5	2.0-5.0	---	1.0-4.0	---
	11-21	4.5-5.5	2.0-5.0	---	1.0-4.0	---
	21-26	4.5-5.5	0.5-3.0	---	1.0-4.0	---
	26-59	4.5-6.0	0.0-0.5	1.0-4.0	---	---
	59-80	4.5-6.5	0.0-0.5	1.0-4.0	---	---
294B:						
Munising, calcareous substratum-----	0-1	3.5-5.5	50-90	---	---	---
	1-3	4.5-6.0	0.5-2.0	---	3.0-12	0
	3-6	4.5-6.0	2.0-5.0	---	6.0-20	0
	6-23	4.5-6.0	0.5-3.0	---	3.0-14	0
	23-38	5.1-6.0	0.0-0.5	1.0-4.0	---	0
	38-50	5.1-6.5	0.0-0.5	2.0-10	---	0
	50-63	5.0-6.0	0.0-0.5	2.0-12	---	0
	63-80	7.4-8.4	0.0-0.5	1.0-6.0	---	10-30
Yalmer, calcareous substratum-----	0-1	3.5-5.5	50-90	---	---	---
	1-2	3.5-5.5	2.0-5.0	---	4.0-18	---
	2-5	3.5-5.5	0.5-2.0	---	1.0-8.0	---
	5-16	4.5-6.0	2.0-5.0	---	4.0-16	---
	16-28	4.5-6.0	0.5-3.0	1.0-6.0	---	---
	28-36	5.1-6.5	0.0-0.5	1.0-5.0	---	---
	36-62	5.1-6.5	0.0-0.5	2.0-10	---	---
	62-80	7.4-8.4	0.0-0.5	1.0-6.0	---	10-30
Frohling, calcareous substratum-----	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-5.5	0.5-2.0	---	---	---
	5-24	4.5-5.5	0.5-3.0	---	---	---
	24-73	5.1-6.0	0.0-0.5	2.0-8.0	---	---
	73-80	7.4-8.4	0.0-0.5	4.0-8.0	---	10-30
295E:						
Dillingham------	0-1	3.5-5.0	50-90	---	---	---
	1-8	3.5-5.0	0.5-2.0	---	0.0-1.0	0
	8-11	3.5-5.5	2.0-5.0	---	0.0-1.0	0
	11-21	3.5-5.5	0.5-3.0	---	0.0-1.0	0
	21-31	3.5-5.5	0.0-0.5	---	0.0-1.0	0
	31-80	3.5-5.9	0.0-0.5	---	0.0-0.5	0
Kalkaska--------	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
355B:						
Springlake------	0-1	4.5-6.0	50-90	---	---	---
	1-7	4.5-6.0	2.0-5.0	5.0-10	---	---
	7-9	5.1-6.0	0.5-2.0	1.0-15	---	---
	9-14	5.1-6.0	2.0-5.0	2.0-10	---	---
	14-23	5.1-7.3	0.5-3.0	2.0-10	---	---
	23-26	6.1-8.4	0.0-0.5	1.0-2.0	---	---
	26-80	7.4-8.4	0.0-0.5	1.0-2.0	---	10-25
366B:						
Gilchrist-------	0-3	4.5-5.5	50-90	---	---	---
	3-7	4.5-5.5	0.1-1.0	---	1.0-5.0	0
	7-9	5.1-5.8	2.0-5.0	---	1.0-3.0	0
	9-26	4.5-6.5	0.5-3.0	---	1.0-5.0	0
	26-80	7.5-8.4	0.0-0.5	0.0-0.5	---	0
367B:						
Cozy----------	0-5	5.1-6.0	50-90	---	---	---
	5-6	5.1-6.0	0.5-2.0	1.0-10	---	0
	6-10	5.1-6.0	2.0-5.0	4.0-16	---	0
	10-14	5.1-6.5	0.5-3.0	1.0-12	---	0
	14-80	7.4-8.4	0.0-0.5	0.0-7.0	---	10-30
400B:						
Amadon----------	0-2	3.5-5.0	50-90	---	---	---
	2-8	3.5-6.0	0.1-0.5	---	1.7-5.3	---
	8-10	3.5-6.0	2.0-6.0	---	3.0-14	---
	10-15	4.5-6.0	0.5-3.0	---	2.3-9.0	---
	15-80	---	---	---	---	---
Rock outcrop.						
401A:						
Ingalls---------	0-4	3.0-5.5	60-90	120-180	---	---
	4-5	3.5-5.5	2.0-5.0	---	4.0-20	---
	5-14	3.5-5.5	0.5-2.0	---	1.0-4.0	---
	14-16	3.5-6.0	2.0-5.0	---	4.0-16	---
	16-35	3.5-6.0	0.5-2.0	---	1.0-8.0	---
	35-80	5.6-7.8	0.0-0.5	1.0-9.0	---	---
490B:						
Pelkie, occasionally flooded--------	0-6	4.5-6.5	2.0-5.0	4.0-18	---	0
	6-38	4.5-6.5	0.5-1.0	1.0-11	---	0
	38-80	4.5-6.5	0.0-0.5	0.0-7.0	---	0
Arnheim, frequently flooded--------	0-6	5.1-7.3	10-30	20-66	---	---
	6-32	5.1-7.3	2.0-5.0	7.0-17	---	---
	32-80	5.1-7.3	0.0-10	2.0-26	---	---
491B:						
Neconish--------	0-1	3.5-5.0	50-90	---	---	---
	1-8	3.5-5.0	0.5-2.0	---	0.7-5.3	0
	8-21	3.5-5.5	0.5-3.0	---	0.7-6.8	0
	21-32	4.5-6.0	0.0-0.5	---	0.0-3.0	0
	32-80	4.5-6.0	0.0-0.5	---	0.0-3.0	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
491B:						
Deford, rarely flooded--------	0-4	4.5-6.0	75-90	---	75-135	0
	4-80	5.1-7.8	0.0-0.5	---	0.0-5.3	0
Wainola---------	0-2	4.5-6.5	50-90	---	---	---
	2-12	4.5-6.5	0.5-2.0	---	0.7-5.2	---
	12-18	4.5-6.5	0.5-3.0	---	0.7-6.7	---
	18-27	4.5-6.5	0.5-3.0	---	0.7-6.7	---
	27-41	4.5-6.5	0.0-0.5	---	0.0-3.0	---
	41-80	4.5-6.5	0.0-0.5	---	0.0-3.0	---
492D:						
Wurtsmith-------	0-2	3.5-6.5	2.0-5.0	---	3.0-9.7	0
	2-7	3.5-6.5	0.5-2.0	---	0.7-5.3	0
	7-15	3.5-6.5	0.5-1.0	---	0.7-3.7	0
	15-26	3.5-6.5	0.5-1.0	---	0.7-3.7	0
	26-80	3.5-7.8	0.0-0.5	0.0-4.0	---	0
Duck----------	0-1	3.5-5.0	50-90	---	---	---
	1-6	3.5-5.0	2.0-8.0	---	1.0-4.0	0
	6-15	4.0-6.0	0.5-1.0	---	1.0-12	0
	15-80	5.1-6.5	0.0-0.5	0.0-1.0	---	0
Rubicon---------	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
493A:						
Deford----------	0-4	4.5-6.0	75-90	---	75-135	0
	4-80	5.1-7.8	0.0-0.5	---	0.0-5.3	0
Meehan----------	0-3	3.5-5.0	50-90	---	---	---
	3-7	3.5-6.0	0.1-1.0	---	0.2-7.0	0
	7-11	4.0-6.0	0.5-1.0	---	1.0-12	0
	11-23	5.1-6.5	0.0-0.5	0.0-7.0	---	0
	23-80	5.1-6.5	0.0-0.5	0.0-7.0	---	0
Seney----------	0-1	3.5-5.0	50-90	---	---	---
	1-5	3.5-5.0	2.0-8.0	---	1.0-4.0	0
	5-14	4.0-6.0	0.5-1.0	---	1.0-12	0
	14-80	5.1-6.5	0.0-0.5	0.0-7.0	---	0
498B:						
Bursaw----------	0-2	6.0-7.4	50-90	---	---	---
	2-49	7.4-8.4	0.0-0.5	0.0-7.0	---	10-25
	49-80	7.4-8.4	0.0-0.5	4.0-11	---	10-30
Beavertail------	0-8	6.6-8.4	75-90	100-180	---	---
	8-16	7.4-8.4	0.0-0.5	0.0-7.0	---	10-30
	16-29	7.4-8.4	0.0-0.5	0.0-7.0	---	10-30
	29-80	7.4-8.4	0.0-0.5	0.0-7.0	---	10-30

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
505B:						
Graveraet-------	0-1	4.0-5.5	50-90	---	---	---
	1-4	4.5-6.0	2.0-5.0	---	8.0-9.0	---
	4-7	4.5-6.0	0.5-2.0	---	3.0-4.0	---
	7-10	4.5-6.5	2.0-5.0	---	8.0-9.0	---
	10-17	4.5-6.5	0.5-3.0	---	8.0-9.0	---
	17-33	5.1-6.5	0.0-0.5	1.0-3.0	---	---
	33-48	5.1-7.2	0.0-0.5	8.0-12	---	---
	48-68	5.1-7.2	0.0-0.5	8.0-12	---	---
	68-80	7.2-8.0	0.0-0.5	3.0-4.0	---	10-30
505D:						
Graveraet-------	0-1	4.0-5.5	50-90	---	---	---
	1-4	4.5-6.0	2.0-5.0	---	8.0-9.0	---
	4-7	4.5-6.0	0.5-2.0	---	3.0-4.0	---
	7-10	4.5-6.5	2.0-5.0	---	8.0-9.0	---
	10-17	4.5-6.5	0.5-3.0	---	8.0-9.0	---
	17-33	5.1-6.5	0.0-0.5	1.0-3.0	---	---
	33-48	5.1-7.2	0.0-0.5	8.0-12	---	---
	48-68	5.1-7.2	0.0-0.5	8.0-12	---	---
	68-80	7.2-8.0	0.0-0.5	3.0-4.0	---	10-30
512A:						
Growton---------	0-6	6.6-7.8	2.0-5.0	5.0-16	---	0
	6-18	6.6-7.8	0.5-2.0	3.0-16	---	0
	18-25	6.4-7.8	0.0-0.5	4.0-15	---	0
	25-80	7.4-8.4	0.0-0.5	2.0-12	---	10-30
514B:						
Kalkaska, burned	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
514D:						
Kalkaska, burned	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
514E:						
Kalkaska, burned	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
515B:						
Vilas----------	0-3	3.4-5.5	2.0-5.0	---	2.0-10	---
	3-5	3.4-5.5	0.5-2.0	---	2.0-8.0	0
	5-9	4.5-6.0	0.5-3.0	---	3.0-5.0	0
	9-20	4.5-6.0	0.5-3.0	---	3.0-5.0	0
	20-80	4.5-6.5	0.0-0.5	---	0.0-3.0	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
516A:						
Deford, drained	0-4	4.5-6.0	75-90	---	75-135	0
	4-80	5.1-7.8	0.0-0.5	---	0.0-5.3	0
Meehan, drained	0-3	3.5-5.0	50-90	---	---	---
	3-7	3.5-6.0	0.1-1.0	---	0.2-7.0	0
	7-11	4.0-6.0	0.5-1.0	---	1.0-12	0
	11-23	5.1-6.5	0.0-0.5	0.0-7.0	---	0
	23-80	5.1-6.5	0.0-0.5	0.0-7.0	---	0
517B:						
Mancelona-------	0-2	4.8-5.6	50-90	---	---	---
	2-7	4.8-5.6	0.5-2.0	---	1.0-7.0	0
	7-19	4.8-5.6	0.5-3.0	---	2.0-12	0
	19-26	5.5-6.5	0.0-0.5	2.0-12	---	0
	26-80	7.4-8.4	0.0-0.5	1.0-4.0	---	10-25
517D:						
Mancelona-------	0-2	4.8-5.6	50-90	---	---	---
	2-7	4.8-5.6	0.5-2.0	---	1.0-7.0	0
	7-19	4.8-5.6	0.5-3.0	---	2.0-12	0
	19-26	5.5-6.5	0.0-0.5	2.0-12	---	0
	26-80	7.4-8.4	0.0-0.5	1.0-4.0	---	10-25
518A:						
Deford, frequently flooded--------	0-4	4.5-6.0	75-90	---	75-135	0
	4-80	5.1-7.8	0.0-0.5	---	0.0-5.3	0
Seney, frequently flooded--------	0-1	3.5-5.0	50-90	---	---	---
	1-5	3.5-5.0	2.0-8.0	---	1.0-4.0	0
	5-14	4.0-6.0	0.5-1.0	---	1.0-12	0
	14-80	5.1-6.5	0.0-0.5	0.0-7.0	---	0
519B:						
Trenary---------	0-2	4.5-6.5	2.0-5.0	4.0-18	---	0
	2-6	4.5-6.5	0.5-2.0	1.0-12	---	0
	6-12	4.5-6.0	2.0-5.0	---	2.0-16	0
	12-17	4.5-5.5	0.5-3.0	---	2.0-16	0
	17-26	5.1-6.5	0.5-2.0	---	1.0-10	0
	26-37	5.1-7.8	0.0-0.5	4.0-12	---	0
	37-80	6.6-8.4	0.0-0.5	2.0-9.0	---	10-30
520B:						
Rubicon---------	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
Sultz----------	0-1	3.5-6.0	50-90	---	---	0
	1-2	3.5-6.5	0.5-3.0	---	1.0-12	0
	2-6	3.5-6.0	0.1-1.0	---	0.2-8.0	0
	6-18	3.5-6.5	0.5-3.0	---	1.0-12	0
	18-51	3.5-6.5	0.0-0.5	0.0-7.0	---	0
	51-80	3.5-6.5	0.0-0.5	0.0-8.0	---	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
520D:						
Rubicon---------	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
Sultz----------	0-1	3.5-6.0	50-90	---	---	0
	1-2	3.5-6.5	0.5-3.0	---	1.0-12	0
	2-6	3.5-6.0	0.1-1.0	---	0.2-8.0	0
	6-18	3.5-6.5	0.5-3.0	---	1.0-12	0
	18-51	3.5-6.5	0.0-0.5	0.0-7.0	---	0
	51-80	3.5-6.5	0.0-0.5	0.0-8.0	---	0
525B:						
Neconish--------	0-1	3.5-5.0	50-90	---	---	---
	1-8	3.5-5.0	0.5-2.0	---	0.7-5.3	0
	8-21	3.5-5.5	0.5-3.0	---	0.7-6.8	0
	21-32	4.5-6.0	0.0-0.5	---	0.0-3.0	0
	32-80	4.5-6.0	0.0-0.5	---	0.0-3.0	0
Kinross---------	0-3	3.4-5.0	75-90	---	100-180	0
	3-14	3.6-5.0	0.5-2.0	---	1.0-10	0
	14-22	3.6-6.0	2.0-5.0	---	1.0-10	0
	22-35	3.6-6.0	0.5-3.0	---	1.0-10	0
	35-80	4.5-6.5	0.0-0.5	---	1.0-2.0	0
Wainola---------	0-2	4.5-6.5	50-90	---	---	---
	2-12	4.5-6.5	0.5-2.0	---	0.7-5.2	---
	12-18	4.5-6.5	0.5-3.0	---	0.7-6.7	---
	18-27	4.5-6.5	0.5-3.0	---	0.7-6.7	---
	27-41	4.5-6.5	0.0-0.5	---	0.0-3.0	---
	41-80	4.5-6.5	0.0-0.5	---	0.0-3.0	---
526B:						
Graveraet-------	0-1	4.0-5.5	50-90	---	---	---
	1-4	4.5-6.0	2.0-5.0	---	8.0-9.0	---
	4-7	4.5-6.0	0.5-2.0	---	3.0-4.0	---
	7-10	4.5-6.5	2.0-5.0	---	8.0-9.0	---
	10-17	4.5-6.5	0.5-3.0	---	8.0-9.0	---
	17-33	5.1-6.5	0.0-0.5	1.0-3.0	---	---
	33-48	5.1-7.2	0.0-0.5	8.0-12	---	---
	48-68	5.1-7.2	0.0-0.5	8.0-12	---	---
	68-80	7.2-8.0	0.0-0.5	3.0-4.0	---	10-30
Angelica--------	0-2	6.1-6.5	50-90	---	---	---
	2-6	6.1-7.3	2.0-5.0	6.0-22	---	---
	6-10	6.1-7.3	0.5-1.0	3.0-18	---	---
	10-17	7.9-8.4	0.0-0.5	7.0-17	---	10-30
	17-80	7.9-8.4	0.0-0.5	7.0-17	---	10-30
527B:						
Islandlake------	0-1	3.5-6.0	50-90	---	---	---
	1-2	3.5-6.0	1.0-3.0	---	1.5-9.0	0
	2-8	3.5-6.0	0.5-2.0	---	0.8-6.0	---
	8-9	4.5-6.0	2.0-5.0	---	3.0-10	0
	9-41	4.5-6.0	0.5-3.0	---	0.7-6.7	0
	41-80	5.1-6.5	0.1-0.5	---	0.2-7.0	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
527B:						
McMillan--------	0-1	3.5-5.0	50-90	---	---	---
	1-4	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	4-6	3.5-5.0	0.5-2.0	---	1.0-2.0	---
	6-9	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	9-16	3.5-5.0	0.5-3.0	---	1.0-4.0	---
	16-22	3.5-5.0	0.5-3.0	---	1.0-2.0	---
	22-32	3.5-5.5	0.0-0.5	---	1.0-2.0	---
	32-80	3.5-5.5	0.0-0.5	---	1.0-2.0	---
527D:						
Islandlake------	0-1	3.5-6.0	50-90	---	---	---
	1-2	3.5-6.0	1.0-3.0	---	1.5-9.0	0
	2-8	3.5-6.0	0.5-2.0	---	0.8-6.0	---
	8-9	4.5-6.0	2.0-5.0	---	3.0-10	0
	9-41	4.5-6.0	0.5-3.0	---	0.7-6.7	0
	41-80	5.1-6.5	0.1-0.5	---	0.2-7.0	0
McMillan--------	0-1	3.5-5.0	50-90	---	---	---
	1-4	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	4-6	3.5-5.0	0.5-2.0	---	1.0-2.0	---
	6-9	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	9-16	3.5-5.0	0.5-3.0	---	1.0-4.0	---
	16-22	3.5-5.0	0.5-3.0	---	1.0-2.0	---
	22-32	3.5-5.5	0.0-0.5	---	1.0-2.0	---
	32-80	3.5-5.5	0.0-0.5	---	1.0-2.0	---
527E:						
Islandlake------	0-1	3.5-6.0	50-90	---	---	---
	1-2	3.5-6.0	1.0-3.0	---	1.5-9.0	0
	2-8	3.5-6.0	0.5-2.0	---	0.8-6.0	---
	8-9	4.5-6.0	2.0-5.0	---	3.0-10	0
	9-41	4.5-6.0	0.5-3.0	---	0.7-6.7	0
	41-80	5.1-6.5	0.1-0.5	---	0.2-7.0	0
McMillan--------	0-1	3.5-5.0	50-90	---	---	---
	1-4	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	4-6	3.5-5.0	0.5-2.0	---	1.0-2.0	---
	6-9	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	9-16	3.5-5.0	0.5-3.0	---	1.0-4.0	---
	16-22	3.5-5.0	0.5-3.0	---	1.0-2.0	---
	22-32	3.5-5.5	0.0-0.5	---	1.0-2.0	---
	32-80	3.5-5.5	0.0-0.5	---	1.0-2.0	---
531B:						
Greylock--------	0-1	5.1-6.0	50-90	---	---	---
	1-6	5.1-6.0	2.0-5.0	5.0-14	---	0
	6-7	5.1-6.0	0.5-2.0	2.0-8.0	---	0
	7-9	5.1-6.0	0.5-5.0	3.0-16	---	0
	9-19	5.1-6.0	0.5-5.0	3.0-16	---	0
	19-26	6.1-7.3	0.0-0.5	4.0-12	---	0
	26-34	6.1-7.3	0.0-0.5	4.0-12	---	0
	34-80	7.4-8.4	0.0-0.5	3.0-9.0	---	10-30

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
531D:						
Greylock--------	0-1	5.1-6.0	50-90	---	---	---
	1-6	5.1-6.0	2.0-5.0	5.0-14	---	0
	6-7	5.1-6.0	0.5-2.0	2.0-8.0	---	0
	7-9	5.1-6.0	0.5-5.0	3.0-16	---	0
	9-19	5.1-6.0	0.5-5.0	3.0-16	---	0
	19-26	6.1-7.3	0.0-0.5	4.0-12	---	0
	26-34	6.1-7.3	0.0-0.5	4.0-12	---	0
	34-80	7.4-8.4	0.0-0.5	3.0-9.0	---	10-30
532:						
Angelica--------	0-2	6.1-6.5	50-90	---	---	---
	2-6	6.1-7.3	2.0-5.0	6.0-22	---	---
	6-10	6.1-7.3	0.5-1.0	3.0-18	---	---
	10-17	7.9-8.4	0.0-0.5	7.0-17	---	10-30
	17-80	7.9-8.4	0.0-0.5	7.0-17	---	10-30
534:						
Pickford--------	0-6	5.1-7.8	3.0-15	10-45	---	0
	6-9	5.1-7.8	1.0-3.0	10-45	---	0
	9-13	5.1-7.8	0.0-0.5	20-30	---	0-10
	13-24	6.6-7.8	0.0-0.5	15-30	---	10-30
	24-80	7.4-8.4	0.0-0.5	15-30	---	10-30
535B:						
Trenary---------	0-2	4.5-6.5	2.0-5.0	4.0-18	---	0
	2-6	4.5-6.5	0.5-2.0	1.0-12	---	0
	6-12	4.5-6.0	2.0-5.0	---	2.0-16	0
	12-17	4.5-5.5	0.5-3.0	---	2.0-16	0
	17-26	5.1-6.5	0.5-2.0	---	1.0-10	0
	26-37	5.1-7.8	0.0-0.5	4.0-12	---	0
	37-80	6.6-8.4	0.0-0.5	2.0-9.0	---	10-30
535D:						
Trenary---------	0-2	4.5-6.5	2.0-5.0	4.0-18	---	0
	2-6	4.5-6.5	0.5-2.0	1.0-12	---	0
	6-12	4.5-6.0	2.0-5.0	---	2.0-16	0
	12-17	4.5-5.5	0.5-3.0	---	2.0-16	0
	17-26	5.1-6.5	0.5-2.0	---	1.0-10	0
	26-37	5.1-7.8	0.0-0.5	4.0-12	---	0
	37-80	6.6-8.4	0.0-0.5	2.0-9.0	---	10-30
536B:						
Menominee, sandy substratum-----	0-1	4.5-5.5	50-90	---	---	---
	1-8	4.5-5.5	0.5-2.0	---	1.0-5.0	---
	8-11	4.5-5.5	2.0-5.0	---	2.0-9.0	---
	11-34	4.5-6.0	0.5-3.0	---	1.0-5.0	---
	34-46	5.1-7.3	0.0-0.5	10-15	---	---
	46-62	7.3-8.4	0.0-0.5	8.0-12	---	10-30
	62-80	5.6-6.5	0.0-0.5	1.0-5.0	---	---
537B:						
McMillan--------	0-1	3.5-5.0	50-90	---	---	---
	1-4	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	4-6	3.5-5.0	0.5-2.0	---	1.0-2.0	---
	6-9	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	9-16	3.5-5.0	0.5-3.0	---	1.0-4.0	---
	16-22	3.5-5.0	0.5-3.0	---	1.0-2.0	---
	22-32	3.5-5.5	0.0-0.5	---	1.0-2.0	---
	32-80	3.5-5.5	0.0-0.5	---	1.0-2.0	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
537D:						
McMillan--------	0-1	3.5-5.0	50-90	---	---	---
	1-4	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	4-6	3.5-5.0	0.5-2.0	---	1.0-2.0	---
	6-9	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	9-16	3.5-5.0	0.5-3.0	---	1.0-4.0	---
	16-22	3.5-5.0	0.5-3.0	---	1.0-2.0	---
	22-32	3.5-5.5	0.0-0.5	---	1.0-2.0	---
	32-80	3.5-5.5	0.0-0.5	---	1.0-2.0	---
538B:						
Menominee, sandy substratum-----	0-1	4.5-5.5	50-90	---	---	---
	1-8	4.5-5.5	0.5-2.0	---	1.0-5.0	---
	8-11	4.5-5.5	2.0-5.0	---	2.0-9.0	---
	11-34	4.5-6.0	0.5-3.0	---	1.0-5.0	---
	34-46	5.1-7.3	0.0-0.5	10-15	---	---
	46-62	7.3-8.4	0.0-0.5	8.0-12	---	10-30
	62-80	5.6-6.5	0.0-0.5	1.0-5.0	---	---
McMillan--------	0-1	3.5-5.0	50-90	---	---	---
	1-4	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	4-6	3.5-5.0	0.5-2.0	---	1.0-2.0	---
	6-9	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	9-16	3.5-5.0	0.5-3.0	---	1.0-4.0	---
	16-22	3.5-5.0	0.5-3.0	---	1.0-2.0	---
	22-32	3.5-5.5	0.0-0.5	---	1.0-2.0	---
	32-80	3.5-5.5	0.0-0.5	---	1.0-2.0	---
540D:						
Deford----------	0-4	4.5-6.0	75-90	---	75-135	0
	4-80	5.1-7.8	0.0-0.5	---	0.0-5.3	0
Rubicon---------	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
Au Gres---------	0-2	3.5-4.4	50-90	---	---	---
	2-7	3.5-6.0	0.1-1.0	---	0.2-7.0	---
	7-17	4.5-6.5	0.5-3.0	1.0-12	---	---
	17-28	4.5-6.5	0.0-0.5	---	1.0-7.0	---
	28-80	4.5-6.5	0.0-0.5	---	1.0-7.0	---
541D:						
Kinross---------	0-3	3.4-5.0	75-90	---	100-180	0
	3-14	3.6-5.0	0.5-2.0	---	1.0-10	0
	14-22	3.6-6.0	2.0-5.0	---	1.0-10	0
	22-35	3.6-6.0	0.5-3.0	---	1.0-10	0
	35-80	4.5-6.5	0.0-0.5	---	1.0-2.0	0
Au Gres---------	0-2	3.5-4.4	50-90	---	---	---
	2-7	3.5-6.0	0.1-1.0	---	0.2-7.0	---
	7-17	4.5-6.5	0.5-3.0	1.0-12	---	---
	17-28	4.5-6.5	0.0-0.5	---	1.0-7.0	---
	28-80	4.5-6.5	0.0-0.5	---	1.0-7.0	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
541D:						
Rubicon---------	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
543B:						
Auger, sandy substratum-----	0-7	3.4-5.0	0.5-2.0	---	1.0-4.0	---
	7-10	3.4-5.0	2.0-5.0	---	3.0-7.0	---
	10-17	3.4-5.0	0.5-3.0	---	3.0-7.0	---
	17-60	4.5-6.0	0.0-0.5	---	1.0-4.0	---
	60-80	4.5-6.5	0.0-0.5	1.0-11	---	---
546B:						
Kalkaska, deep water table----	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
546D:						
Kalkaska, deep water table----	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
547B:						
Rubicon, very deep water table----------	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
547D:						
Rubicon, very deep water table----------	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
548B:						
McMillan--------	0-1	3.5-5.0	50-90	---	---	---
	1-4	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	4-6	3.5-5.0	0.5-2.0	---	1.0-2.0	---
	6-9	3.5-5.0	2.0-5.0	---	1.0-4.0	---
	9-16	3.5-5.0	0.5-3.0	---	1.0-4.0	---
	16-22	3.5-5.0	0.5-3.0	---	1.0-2.0	---
	22-32	3.5-5.5	0.0-0.5	---	1.0-2.0	---
	32-80	3.5-5.5	0.0-0.5	---	1.0-2.0	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
548B:						
Trenary---------	0-2	4.5-6.5	2.0-5.0	4.0-18	---	0
	2-6	4.5-6.5	0.5-2.0	1.0-12	---	0
	6-12	4.5-6.0	2.0-5.0	---	2.0-16	0
	12-17	4.5-5.5	0.5-3.0	---	2.0-16	0
	17-26	5.1-6.5	0.5-2.0	---	1.0-10	0
	26-37	5.1-7.8	0.0-0.5	4.0-12	---	0
	37-80	6.6-8.4	0.0-0.5	2.0-9.0	---	10-30
549B:						
Islandlake------	0-1	3.5-6.0	50-90	---	---	---
	1-2	3.5-6.0	1.0-3.0	---	1.5-9.0	0
	2-8	3.5-6.0	0.5-2.0	---	0.8-6.0	---
	8-9	4.5-6.0	2.0-5.0	---	3.0-10	0
	9-41	4.5-6.0	0.5-3.0	---	0.7-6.7	0
	41-80	5.1-6.5	0.1-0.5	---	0.2-7.0	0
549D:						
Islandlake------	0-1	3.5-6.0	50-90	---	---	---
	1-2	3.5-6.0	1.0-3.0	---	1.5-9.0	0
	2-8	3.5-6.0	0.5-2.0	---	0.8-6.0	---
	8-9	4.5-6.0	2.0-5.0	---	3.0-10	0
	9-41	4.5-6.0	0.5-3.0	---	0.7-6.7	0
	41-80	5.1-6.5	0.1-0.5	---	0.2-7.0	0
549E:						
Islandlake------	0-1	3.5-6.0	50-90	---	---	---
	1-2	3.5-6.0	1.0-3.0	---	1.5-9.0	0
	2-8	3.5-6.0	0.5-2.0	---	0.8-6.0	---
	8-9	4.5-6.0	2.0-5.0	---	3.0-10	0
	9-41	4.5-6.0	0.5-3.0	---	0.7-6.7	0
	41-80	5.1-6.5	0.1-0.5	---	0.2-7.0	0
551B:						
Kalkaska, very deep water table----------	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
551D:						
Kalkaska, very deep water table----------	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
553:						
Carbondale------	0-38	5.1-7.3	75-90	100-180	---	---
	38-80	5.1-7.3	90-95	100-180	---	---
Loxley----------	0-8	3.5-4.4	85-95	---	100-180	0
	8-80	3.5-4.4	80-95	---	100-180	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
554B:						
Duck----------	0-1	3.5-5.0	50-90	---	---	---
	1-6	3.5-5.0	2.0-8.0	---	1.0-4.0	0
	6-15	4.0-6.0	0.5-1.0	---	1.0-12	0
	15-80	5.1-6.5	0.0-0.5	0.0-1.0	---	0
Halfaday--------	0-2	4.5-5.0	50-90	---	---	---
	2-9	3.5-6.0	0.5-2.0	---	1.0-4.0	0
	9-10	3.5-6.0	2.0-5.0	---	4.0-12	0
	10-35	3.5-6.0	0.5-3.0	---	---	0
	35-80	5.1-6.5	0.0-0.5	0.0-1.0	---	0
555D:						
Hiawatha--------	0-2	4.5-5.5	50-90	---	---	---
	2-6	4.5-5.5	2.0-5.0	---	---	---
	6-80	4.5-6.0	0.0-0.5	---	---	---
Deer Park-------	0-2	3.5-6.0	50-90	---	---	---
	2-3	3.5-6.0	2.0-5.0	---	2.5-4.2	0
	3-10	3.5-6.0	0.5-2.0	---	0.0-1.4	0
	10-21	3.5-6.5	0.5-3.0	---	0.0-1.4	0
	21-80	3.5-6.5	0.0-0.5	---	0.0-1.4	0
Rubicon---------	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
557B:						
Kalkaska, very deep water table, burned--	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
557D:						
Kalkaska, very deep water table, burned--	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
558B:						
Islandlake, burned---------	0-1	3.5-6.0	50-90	---	---	---
	1-2	3.5-6.0	1.0-3.0	---	1.5-9.0	0
	2-8	3.5-6.0	0.5-2.0	---	0.8-6.0	---
	8-9	4.5-6.0	2.0-5.0	---	3.0-10	0
	9-41	4.5-6.0	0.5-3.0	---	0.7-6.7	0
	41-80	5.1-6.5	0.1-0.5	---	0.2-7.0	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
558D:						
Islandlake, burned---------	0-1	3.5-6.0	50-90	---	---	---
	1-2	3.5-6.0	1.0-3.0	---	1.5-9.0	0
	2-8	3.5-6.0	0.5-2.0	---	0.8-6.0	---
	8-9	4.5-6.0	2.0-5.0	---	3.0-10	0
	9-41	4.5-6.0	0.5-3.0	---	0.7-6.7	0
	41-80	5.1-6.5	0.1-0.5	---	0.2-7.0	0
559B:						
Kalkaska, deep water table, burned---------	0-2	3.5-6.0	2.0-5.0	---	2.0-11	0
	2-6	4.5-6.0	0.1-1.0	---	1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0	---	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0	---	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5	---	0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
560B:						
Islandlake, very deep water table----------	0-1	3.5-6.0	50-90	---	---	---
	1-2	3.5-6.0	1.0-3.0	---	1.5-9.0	0
	2-8	3.5-6.0	0.5-2.0	---	0.8-6.0	---
	8-9	4.5-6.0	2.0-5.0	---	3.0-10	0
	9-41	4.5-6.0	0.5-3.0	---	0.7-6.7	0
	41-80	5.1-6.5	0.1-0.5	---	0.2-7.0	0
561A:						
Croswell--------	0-2	4.5-5.0	50-90	---	---	---
	2-6	3.5-6.0	0.1-1.0	---	0.2-7.0	0
	6-15	4.5-6.0	0.5-3.0	---	1.0-12	0
	15-22	5.1-6.5	0.0-0.5	0.0-7.0	---	0
	22-80	5.1-6.5	0.0-0.5	0.0-7.0	---	0
562B:						
Croswell--------	0-2	4.5-5.0	50-90	---	---	---
	2-6	3.5-6.0	0.1-1.0	---	0.2-7.0	0
	6-15	4.5-6.0	0.5-3.0	---	1.0-12	0
	15-22	5.1-6.5	0.0-0.5	0.0-7.0	---	0
	22-80	5.1-6.5	0.0-0.5	0.0-7.0	---	0
Kinross---------	0-3	3.4-5.0	75-90	---	100-180	0
	3-14	3.6-5.0	0.5-2.0	---	1.0-10	0
	14-22	3.6-6.0	2.0-5.0	---	1.0-10	0
	22-35	3.6-6.0	0.5-3.0	---	1.0-10	0
	35-80	4.5-6.5	0.0-0.5	---	1.0-2.0	0
563B:						
Halfaday--------	0-2	4.5-5.0	50-90	---	---	---
	2-9	3.5-6.0	0.5-2.0	---	1.0-4.0	0
	9-10	3.5-6.0	2.0-5.0	---	4.0-12	0
	10-35	3.5-6.0	0.5-3.0	---	---	0
	35-80	5.1-6.5	0.0-0.5	0.0-1.0	---	0
Kinross---------	0-3	3.4-5.0	75-90	---	100-180	0
	3-14	3.6-5.0	0.5-2.0	---	1.0-10	0
	14-22	3.6-6.0	2.0-5.0	---	1.0-10	0
	22-35	3.6-6.0	0.5-3.0	---	1.0-10	0
	35-80	4.5-6.5	0.0-0.5	---	1.0-2.0	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
564A:						
Ingalls---------	0-1	3.5-5.0	50-90	---	---	---
	1-3	3.5-5.0	50-90	120-180	---	---
	3-10	3.5-5.5	0.5-2.0	---	1.0-4.0	---
	10-17	3.5-5.8	2.0-5.0	---	4.0-20	---
	17-23	3.5-6.0	2.0-5.0	---	4.0-16	---
	23-43	3.5-6.0	0.5-2.0	---	1.0-8.0	---
	43-80	5.6-7.8	0.0-0.5	1.0-9.0	---	---
565B:						
Rubicon, deep water table----	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
565D:						
Rubicon, deep water table----	0-2	4.5-5.5	50-90	---	---	---
	2-5	4.5-6.0	0.1-1.0	---	0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	---	0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	---	0
W. Water						

Table 18.--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			
10B:									
Amadon	Bedrock (lithic)	10-20	---	---	---	---	Moderate	Low	Moderate
Rock outcrop	Bedrock (lithic)	0-4	---	---	---	---	---	---	---
11B:									
Kalkaska	---	---	---	---	---	---	Low	Low	High
12B:									
Rubicon	---	---	---	---	---	---	Low	Low	High
12D:									
Rubicon	---	---	---	---	---	---	Low	Low	High
12E:									
Rubicon	---	---	---	---	---	---	Low	Low	High
12F:									
Rubicon	---	---	---	---	---	---	Low	Low	High
13B:									
Kalkaska	---	---	---	---	---	---	Low	Low	High
13D:									
Kalkaska	---	---	---	---	---	---	Low	Low	High
13E:									
Kalkaska	---	---	---	---	---	---	Low	Low	High
13F:									
Kalkaska	---	---	---	---	---	---	Low	Low	High
16A:									
Paquin	Ortstein	10-16	10-20	Strongly cemented	---	---	Low	Low	High
17A:									
Au Gres	---	---	---	---	---	---	Moderate	Low	Moderate
18:									
Kinross	---	---	---	---	0-2	0-4	Moderate	High	Moderate

Table 18.--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			
19A:									
Au Gres	---	---	---	---	---	---	Moderate	Low	Moderate
Deford	---	---	---	---	0-2	0-4	Moderate	High	Moderate
20E:									
Rousseau	---	---	---	---	---	---	Low	Low	Moderate
Neconish	---	---	---	---	---	---	Low	Low	High
Finch	Ortstein	7-13	24-40	Strongly cemented	---	---	Low	High	Moderate
21B:									
Garlic	---	---	---	---	---	---	Low	Low	High
21D:									
Garlic	---	---	---	---	---	---	Low	Low	High
21E:									
Garlic	---	---	---	---	---	---	Low	Low	High
22E:									
Rousseau	---	---	---	---	---	---	Low	Low	Moderate
Neconish	---	---	---	---	---	---	Low	Low	High
Deford	---	---	---	---	0-2	0-4	Moderate	High	Moderate
24B:									
Rousseau	---	---	---	---	---	---	Low	Low	Moderate
24D:									
Rousseau	---	---	---	---	---	---	Low	Low	Moderate
24E:									
Rousseau	---	---	---	---	---	---	Low	Low	Moderate
25B:									
Proper	---	---	---	---	---	---	Low	Low	Moderate
26A:									
Spot	Ortstein	8-12	2-15	Strongly cemented	0-2	0-4	Moderate	High	High
Finch	Ortstein	7-13	24-40	Strongly cemented	---	---	Low	High	Moderate

Table 18.--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			
27A:									
Hendrie	---	---	---	---	0-2	0-4	High	Moderate	High
Annanias	---	---	---	---	---	---	High	Moderate	High
30:									
Hendrie	---	---	---	---	0-2	0-4	High	Moderate	High
33.									
Pits, sand and gravel									
34B:									
Liminga	---	---	---	---	---	---	Low	Low	Moderate
34E:									
Liminga	---	---	---	---	---	---	Low	Low	Moderate
36:									
Carbondale	---	---	---	---	15-28	30-48	High	Moderate	Moderate
Lupton	---	---	---	---	15-28	30-48	High	Moderate	Low
Tawas	---	---	---	---	8-24	18-40	High	Moderate	Moderate
37:									
Dawson	---	---	---	---	0-19	19-38	High	Moderate	High
Greenwood	---	---	---	---	6-18	50-55	High	Moderate	High
Loxley	---	---	---	---	6-18	50-55	High	Moderate	High
43:									
Ensley	---	---	---	---	---	---	High	Low	Moderate
56B:									
Shuberts	Bedrock (lithic)	20-40	---	---	---	---	Moderate	High	Moderate
Wurtsmith	---	---	---	---	---	---	Low	Low	High
Meehan	---	---	---	---	---	---	Low	Low	Moderate
61A:									
Ingalls	---	---	---	---	---	---	Moderate	Low	High
Caffey	---	---	---	---	0-2	0-4	Moderate	High	Low

Table 18.--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			
62B:									
McMillan	---	---	---	---	---	---	Moderate	Low	High
Greylock	---	---	---	---	---	---	Moderate	Moderate	Low
62D:									
McMillan	---	---	---	---	---	---	Moderate	Low	High
Greylock	---	---	---	---	---	---	Moderate	Moderate	Low
62E:									
Greylock	---	---	---	---	---	---	Moderate	Moderate	Low
McMillan	---	---	---	---	---	---	Moderate	Low	High
63:									
Deford	---	---	---	---	0-2	0-4	Moderate	High	Moderate
65:									
Ausable, frequently flooded	---	---	---	---	0-5	0-9	High	Moderate	Low
Deford, frequently flooded	---	---	---	---	0-2	0-3	Moderate	High	Low
Tawas, frequently flooded	---	---	---	---	8-24	18-40	High	Moderate	Moderate
66:									
Markey	---	---	---	---	8-24	18-40	High	Moderate	High
67B:									
Pelkie, occasionally flooded	---	---	---	---	---	---	Low	Low	Moderate
Deford, frequently flooded	---	---	---	---	0-2	0-3	Moderate	High	Low
68F:									
Deer Park	---	---	---	---	---	---	Low	Low	Low
69:									
Ruse	Bedrock (lithic)	4-20	60-76	Indurated	---	---	High	High	Low

Table 18.--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			
70F:									
Deer Park	---	---	---	---	---	---	Low	Low	Low
Deford	---	---	---	---	0-2	0-4	Moderate	High	Moderate
Tawas	---	---	---	---	8-24	18-40	High	Moderate	Moderate
72:									
Spot	Ortstein	8-12	2-15	Strongly cemented	0-2	0-4	Moderate	High	High
73B:									
Graveraet	Fragipan	14-24	10-16	Strongly cemented	---	---	Moderate	Moderate	Moderate
Gulliver	Bedrock (lithic)	40-60	20-40	Indurated	---	---	Moderate	Moderate	Moderate
76A:									
Shuberts	Bedrock (lithic)	20-40	---	---	---	---	Moderate	High	Moderate
Manistique	Bedrock (lithic)	20-40	---	---	---	---	Moderate	Low	Moderate
78B:									
Heinz	---	---	---	---	---	---	Low	Low	Low
80F:									
Deer Park	---	---	---	---	---	---	Low	Low	Low
Dawson	---	---	---	---	0-19	19-38	High	Moderate	High
Wainola	---	---	---	---	---	---	Moderate	Low	High
84:									
Dawson	---	---	---	---	0-19	19-38	High	Moderate	High
Kinross	---	---	---	---	0-2	0-4	Moderate	High	Moderate
86B:									
Wurtsmith	---	---	---	---	---	---	Low	Low	High
Tawas	---	---	---	---	8-24	18-40	High	Moderate	Moderate
Deford	---	---	---	---	0-2	0-4	Moderate	High	Moderate
87B:									
Longrie	Bedrock (lithic)	20-40	---	---	---	---	Moderate	Low	Low
Amadon	Bedrock (lithic)	10-20	---	---	---	---	Moderate	Low	Moderate

Table 18.--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			
87D:									
Amadon	Bedrock (lithic)	10-20	---	Indurated	---	---	Moderate	Low	Moderate
Longrie	Bedrock (lithic)	20-40	---	Indurated	---	---	Moderate	Low	Low
87E:									
Amadon	Bedrock (lithic)	10-20	---	Indurated	---	---	Moderate	Low	Moderate
Longrie	Bedrock (lithic)	20-40	---	Indurated	---	---	Moderate	Low	Low
Rock outcrop	Bedrock (lithic)	0-4	---	---	---	---	---	---	---
88B:									
Cookson	Bedrock (lithic)	20-40	---	---	---	---	Moderate	Moderate	Low
Amadon	Bedrock (lithic)	10-20	---	---	---	---	Moderate	Low	Moderate
89B:									
Cookson	Bedrock (lithic)	20-40	---	---	---	---	Moderate	Moderate	Low
Trenary	---	---	---	---	---	---	Moderate	Low	Moderate
90:									
Chippeny	Bedrock (lithic)	16-51	29-64	Indurated	---	---	High	Moderate	Low
91:									
Cathro	---	---	---	---	0-17	0-34	High	Moderate	Moderate
Lupton	---	---	---	---	15-28	30-48	High	Moderate	Low
93A:									
Ruse	Bedrock (lithic)	4-20	60-76	Indurated	---	---	High	High	Low
Ensign	Bedrock (lithic)	10-20	60-70	Indurated	---	---	High	Moderate	Low
98B:									
Guardlake	---	---	---	---	---	---	Low	Low	Low
98D:									
Guardlake	---	---	---	---	---	---	Low	Low	Low
98E:									
Guardlake	---	---	---	---	---	---	Low	Low	Low

Table 18.--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			
116F:									
Udipsamments.									
Udorthents.									
119.									
Landfill									
120A:									
Charlevoix	---	---	---	---	---	---	High	High	Moderate
Ensley	---	---	---	---	---	---	High	Low	Moderate
122A:									
Wormet	---	---	---	---	---	---	Moderate	Low	High
123:									
Minocqua	---	---	---	---	0-3	0-5	High	Moderate	High
125B:									
Stutts	---	---	---	---	---	---	Low	Low	High
Kalkaska	---	---	---	---	---	---	Low	Low	High
125D:									
Stutts	---	---	---	---	---	---	Low	Low	High
Kalkaska	---	---	---	---	---	---	Low	Low	High
125E:									
Stutts	---	---	---	---	---	---	Low	Low	High
Kalkaska	---	---	---	---	---	---	Low	Low	High
131B:									
Furlong	Bedrock (lithic)	20-40	40-70	Indurated	---	---	Low	Low	High
Shingleton	Bedrock (lithic)	10-20	60-70	Indurated	---	---	Low	Low	High
141A:									
Halfaday	---	---	---	---	---	---	Low	Low	High
145B:									
Noseum	---	---	---	---	---	---	Moderate	Low	High

Table 18.--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			
155B:									
Karlin	---	---	---	---	---	---	Low	Low	High
160B:									
Paquin	Ortstein	10-16	10-20	Strongly cemented	---	---	Low	Low	High
Finch	Ortstein	7-13	24-40	Strongly cemented	---	---	Low	High	Moderate
218:									
Pits, quarry	Bedrock (lithic)	0-4	---	Indurated	---	---	---	---	---
219B:									
Cublake	---	---	---	---	---	---	Low	Low	High
222:									
Histosols	---	---	---	---	6-18	50-55	High	High	Moderate
Aquents	---	---	---	---	---	---	High	---	---
225B:									
Cusino	---	---	---	---	---	---	Low	Low	High
248B:									
Escanaba	---	---	---	---	---	---	Low	Low	Moderate
Greylock	---	---	---	---	---	---	Moderate	Low	Moderate
249A:									
Iosco	---	---	---	---	---	---	Moderate	Low	High
267A:									
Finch	Ortstein	7-13	24-40	Strongly cemented	---	---	Low	High	Moderate
287B:									
Hiawatha	---	---	---	---	---	---	Low	Low	High
289B:									
Wallace	Ortstein	8-18	8-30	Strongly cemented	---	---	Low	Low	High
289D:									
Wallace	Ortstein	8-18	8-30	Strongly cemented	---	---	Low	Low	High
289E:									
Wallace	Ortstein	8-18	8-30	Strongly cemented	---	---	Low	Low	High

Table 18.--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			
294B:									
Munising, calcareous substratum	Fragipan	15-25	25-43	Noncemented	---	---	Moderate	Low	High
Yalmer, calcareous substratum	Fragipan	20-40	13-45	Noncemented	---	---	Low	Low	Moderate
Frohling, calcareous substratum	Fragipan	15-25	24-65	Noncemented	---	---	Moderate	Low	Moderate
295E:									
Dillingham	Fragipan	16-28	8-16	Strongly cemented	---	---	Low	Low	High
Kalkaska	---	---	---	---	---	---	Low	Low	High
355B:									
Springlake	---	---	---	---	---	---	Low	Low	Moderate
366B:									
Gilchrist	Dense material	---	---	Strongly cemented	---	---	Low	Moderate	High
367B:									
Cozy	Dense material	---	---	Very strongly cemented	---	---	Moderate	Moderate	High
400B:									
Amadon	Bedrock (lithic)	10-20	---	---	---	---	Moderate	Low	Moderate
Rock outcrop	Bedrock (lithic)	0-4	---	---	---	---	---	---	---
401A:									
Ingalls	---	---	---	---	---	---	Moderate	Low	High
490B:									
Pelkie, occasionally flooded	---	---	---	---	---	---	Low	Low	Moderate
Arnheim, frequently flooded	---	---	---	---	---	---	High	High	Low
491B:									
Neconish	---	---	---	---	---	---	Low	Low	High
Deford, rarely flooded	---	---	---	---	0-2	0-3	Moderate	High	Low
Wainola	---	---	---	---	---	---	Moderate	Low	High

Table 18.--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			
492D:									
Wurtsmith	---	---	---	---	---	---	Low	Low	High
Duck	---	---	---	---	---	---	Low	Low	High
Rubicon	---	---	---	---	---	---	Low	Low	High
493A:									
Deford	---	---	---	---	0-2	0-4	Moderate	High	Moderate
Meehan	---	---	---	---	---	---	Low	Low	Moderate
Seney	---	---	---	---	---	---	Low	Low	Moderate
498B:									
Bursaw	Dense material	---	---	Strongly cemented	---	---	Low	Low	High
Beavertail	---	---	---	---	---	---	High	Low	Moderate
505B:									
Graveraet	Fragipan	14-24	10-16	Strongly cemented	---	---	Moderate	Moderate	Moderate
505D:									
Graveraet	Fragipan	14-24	10-16	Strongly cemented	---	---	Moderate	Moderate	Moderate
512A:									
Growton	---	---	---	---	---	---	Moderate	High	Low
514B:									
Kalkaska, burned	---	---	---	---	---	---	Low	Low	High
514D:									
Kalkaska, burned	---	---	---	---	---	---	Low	Low	High
514E:									
Kalkaska, burned	---	---	---	---	---	---	Low	Low	High
515B:									
Vilas	---	---	---	---	---	---	Low	Low	High
516A:									
Deford, drained	---	---	---	---	0-2	0-4	Moderate	High	Moderate
Meehan, drained	---	---	---	---	---	---	Low	Low	Moderate

Table 18.--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			
517B:									
Mancelona	---	---	---	---	---	---	Low	Low	Low
517D:									
Mancelona	---	---	---	---	---	---	Low	Low	Low
518A:									
Deford, frequently flooded	---	---	---	---	0-2	0-3	Moderate	High	Low
Seney, frequently flooded	---	---	---	---	---	---	Low	Low	Moderate
519B:									
Trenary	---	---	---	---	---	---	Moderate	Low	Moderate
520B:									
Rubicon	---	---	---	---	---	---	Low	Low	High
Sultz	---	---	---	---	---	---	Low	Low	Moderate
520D:									
Rubicon	---	---	---	---	---	---	Low	Low	High
Sultz	---	---	---	---	---	---	Low	Low	High
525B:									
Neconish	---	---	---	---	---	---	Low	Low	High
Kinross	---	---	---	---	0-2	0-4	Moderate	High	Moderate
Wainola	---	---	---	---	---	---	Moderate	Low	High
526B:									
Graveraet	Fragipan	14-24	10-16	Strongly cemented	---	---	Moderate	Moderate	Moderate
Angelica	---	---	---	---	0-1	0-2	High	High	Low
527B:									
Islandlake	---	---	---	---	---	---	Low	Low	High
McMillan	---	---	---	---	---	---	Moderate	Low	High

Table 18.--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			
527D:									
Islandlake	---	---	---	---	---	---	Low	Low	High
McMillan	---	---	---	---	---	---	Moderate	Low	High
527E:									
Islandlake	---	---	---	---	---	---	Low	Low	High
McMillan	---	---	---	---	---	---	Moderate	Low	High
531B:									
Greylock	---	---	---	---	---	---	Moderate	Low	Moderate
531D:									
Greylock	---	---	---	---	---	---	Moderate	Low	Moderate
532:									
Angelica	---	---	---	---	0-1	0-2	High	High	Low
534:									
Pickford	---	---	---	---	---	---	High	High	Low
535B:									
Trenary	---	---	---	---	---	---	Moderate	Low	Moderate
535D:									
Trenary	---	---	---	---	---	---	Moderate	Low	Moderate
536B:									
Menominee, sandy substratum	---	---	---	---	---	---	Low	Low	Moderate
537B:									
McMillan	---	---	---	---	---	---	Moderate	Low	High
537D:									
McMillan	---	---	---	---	---	---	Moderate	Low	High
538B:									
Menominee, sandy substratum	---	---	---	---	---	---	Low	Low	Moderate
McMillan	---	---	---	---	---	---	Moderate	Low	High

Table 18.--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			
540D:									
Deford	---	---	---	---	0-2	0-4	Moderate	High	Moderate
Rubicon	---	---	---	---	---	---	Low	Low	High
Au Gres	---	---	---	---	---	---	Moderate	Low	Moderate
541D:									
Kinross	---	---	---	---	0-2	0-4	Moderate	High	Moderate
Au Gres	---	---	---	---	---	---	Moderate	Low	Moderate
Rubicon	---	---	---	---	---	---	Low	Low	High
543B:									
Auger, sandy substratum	---	---	---	---	---	---	Moderate	Moderate	High
546B:									
Kalkaska, deep water table	---	---	---	---	---	---	Low	Low	High
546D:									
Kalkaska, deep water table	---	---	---	---	---	---	Low	Low	High
547B:									
Rubicon, very deep water table	---	---	---	---	---	---	Low	Low	High
547D:									
Rubicon, very deep water table	---	---	---	---	---	---	Low	Low	High
548B:									
McMillan	---	---	---	---	---	---	Moderate	Low	High
Trenary	---	---	---	---	---	---	Moderate	Low	Moderate
549B:									
Islandlake	---	---	---	---	---	---	Low	Low	High
549D:									
Islandlake	---	---	---	---	---	---	Low	Low	High
549E:									
Islandlake	---	---	---	---	---	---	Low	Low	High

Table 18.--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			
551B:									
Kalkaska, very deep water table	---	---	---	---	---	---	Low	Low	High
551D:									
Kalkaska, very deep water table	---	---	---	---	---	---	Low	Low	High
553:									
Carbondale	---	---	---	---	15-28	30-48	High	Moderate	Moderate
Loxley	---	---	---	---	6-18	50-55	High	Moderate	High
554B:									
Duck	---	---	---	---	---	---	Low	Low	High
Halfaday	---	---	---	---	---	---	Low	Low	High
555D:									
Hiawatha	---	---	---	---	---	---	Low	Low	High
Deer Park	---	---	---	---	---	---	Low	Low	Low
Rubicon	---	---	---	---	---	---	Low	Low	High
557B:									
Kalkaska, very deep water table, burned	---	---	---	---	---	---	Low	Low	High
557D:									
Kalkaska, very deep water table, burned	---	---	---	---	---	---	Low	Low	High
558B:									
Islandlake, burned	---	---	---	---	---	---	Low	Low	High
558D:									
Islandlake, burned	---	---	---	---	---	---	Low	Low	High
559B:									
Kalkaska, deep water table, burned	---	---	---	---	---	---	Low	Low	High
560B:									
Islandlake, very deep water table	---	---	---	---	---	---	Low	Low	High

Table 18.--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			
561A:									
Croswell	---	---	---	---	---	---	Low	Low	Moderate
562B:									
Croswell	---	---	---	---	---	0	Low	Low	Moderate
Kinross	---	---	---	---	0-2	0-4	Moderate	High	Moderate
563B:									
Halfaday	---	---	---	---	---	---	Low	Low	High
Kinross	---	---	---	---	0-2	0-4	Moderate	High	Moderate
564A:									
Ingalls	---	---	---	---	---	---	Moderate	Low	High
565B:									
Rubicon, deep water table	---	---	---	---	---	---	Low	Low	High
565D:									
Rubicon, deep water table	---	---	---	---	---	---	Low	Low	High
W.									
Water									

Table 19.--Soil Moisture Status by Depth

(Depths of layers are in feet)

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
10B:												
Amadon----------	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.0: Dry 1.0-1.2: Moist	0.0-1.2: Dry ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---
Rock outcrop.												
11B:												
Kalkaska--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
12B:												
Rubicon---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
12D:												
Rubicon---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
12E:												
Rubicon---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
12F:												
Rubicon---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
13B:												
Kalkaska--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
13D:												
Kalkaska--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
13E:												
Kalkaska--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
13F:												
Kalkaska--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
16A:												
Paquin----------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
17A:												
Au Gres---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
18:												
Kinross---------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
19A:												
Au Gres---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
19A:												
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
20E:												
Rousseau--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Neconish--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Finch----------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
21B:												
Garlic----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
21D:												
Garlic----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
21E:												
Garlic----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
22E:												
Rousseau--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Neconish--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
24B:												
Rousseau--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
24D:												
Rousseau--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
24E:												
Rousseau--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
25B:												
Proper----------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
26A:												
Spot----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Finch----------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
27A:												
Hendrie---------	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet
Annanias--------	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet
30:												
Hendrie---------	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet
33. Pits, sand and gravel												
34B:												
Liminga---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
34E:												
Liminga---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
36:												
Carbondale------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Lupton----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Tawas----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
37:												
Dawson----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Greenwood-------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Loxley----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
43:												
Ensley----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---
56B:												
Shuberts--------	0.0-2.1: Wet ---	0.0-2.1: Wet ---	0.0-2.1: Wet ---	0.0-2.1: Wet ---	0.0-2.1: Wet ---	0.0-0.5: Moist 0.5-2.1: Wet	0.0-1.0: Moist 1.0-2.1: Wet	0.0-2.0: Moist 2.0-2.1: Wet	0.0-1.5: Moist 1.5-2.1: Wet	0.0-2.1: Wet ---	0.0-2.1: Wet ---	0.0-2.1: Wet ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
56B:												
Wurtsmith--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Meehan----------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
61A:												
Ingalls---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
Caffey----------	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet
62B:												
McMillan--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Greylock--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
62D:												
McMillan--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
62D:												
Greylock--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
62E:												
Greylock--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
McMillan--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
63:												
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
65:												
Ausable---------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Tawas----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
66:												
Markey----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
67B:												
Pelkie----------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.5: Moist 4.5-6.7: Wet ---
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
68F:												
Deer Park-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
69:												
Ruse----------	0.0-1.2: Wet ---	0.0-1.2: Wet ---	0.0-1.2: Wet ---	0.0-1.2: Wet ---	0.0-1.2: Wet ---	0.0-0.5: Moist 0.5-1.2: Wet	0.0-1.0: Moist 1.0-1.2: Wet	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Wet ---	0.0-1.2: Wet ---	0.0-1.2: Wet ---
70F:												
Deer Park-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Tawas----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
72:												
Spot----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
73B:												
Graveraet-------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-0.5: Dry 0.5-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist --- ---
Gulliver--------	0.0-4.8: Moist ---	0.0-4.8: Moist ---	0.0-2.0: Moist 2.0-4.8: Wet	0.0-1.5: Moist 1.5-4.8: Wet	0.0-2.0: Moist 2.0-4.8: Wet	0.0-4.8: Moist ---	0.0-1.0: Dry 1.0-4.8: Moist	0.0-1.5: Dry 1.5-4.8: Moist	0.0-4.8: Moist ---	0.0-4.8: Moist ---	0.0-4.8: Moist ---	0.0-4.8: Moist ---
76A:												
Shuberts--------	0.0-2.1: Wet ---	0.0-2.1: Wet ---	0.0-2.1: Wet ---	0.0-2.1: Wet ---	0.0-2.1: Wet ---	0.0-0.5: Moist 0.5-2.1: Wet	0.0-1.0: Moist 1.0-2.1: Wet	0.0-2.0: Moist 2.0-2.1: Wet	0.0-1.5: Moist 1.5-2.1: Wet	0.0-2.1: Wet ---	0.0-2.1: Wet ---	0.0-2.1: Wet ---
Manistique------	0.0-2.0: Moist 2.0-2.3: Wet	0.0-2.0: Moist 2.0-2.3: Wet	0.0-1.5: Moist 1.5-2.3: Wet	0.0-1.0: Moist 1.0-2.3: Wet	0.0-0.5: Moist 0.5-2.3: Wet	0.0-2.0: Moist 2.0-2.3: Wet	0.0-2.3: Moist ---	0.0-2.3: Moist ---	0.0-2.3: Moist ---	0.0-1.0: Moist 1.0-2.3: Wet	0.0-1.0: Moist 1.0-2.3: Wet	0.0-1.5: Moist 1.5-2.3: Wet
78B:												
Heinz----------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
80F:												
Deer Park-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Dawson----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
80F:												
Wainola---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
84:												
Dawson----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Kinross---------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
86B:												
Wurtsmith-------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Tawas----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
87B:												
Longrie---------	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-1.0: Dry 1.0-3.0: Moist	0.0-1.5: Dry 1.5-3.0: Moist	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---
Amadon----------	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.0: Dry 1.0-1.2: Moist	0.0-1.2: Dry ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
87D:												
Amadon----------	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.0: Dry 1.0-1.2: Moist	0.0-1.2: Dry ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---
Longrie---------	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-1.0: Dry 1.0-3.0: Moist	0.0-1.5: Dry 1.5-3.0: Moist	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---
87E:												
Amadon----------	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.0: Dry 1.0-1.2: Moist	0.0-1.2: Dry ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---
Longrie---------	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-1.0: Dry 1.0-3.0: Moist	0.0-1.5: Dry 1.5-3.0: Moist	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---
Rock outcrop.												
88B:												
Cookson---------	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-1.0: Dry 1.0-3.0: Moist	0.0-1.5: Dry 1.5-3.0: Moist	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---
Amadon----------	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.0: Dry 1.0-1.2: Moist	0.0-1.2: Dry ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---
89B:												
Cookson---------	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-1.0: Dry 1.0-3.0: Moist	0.0-1.5: Dry 1.5-3.0: Moist	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---	0.0-3.0: Moist ---
Trenary---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
90:												
Chippeny--------	0.0-2.3: Wet ---	0.0-2.3: Wet ---	0.0-2.3: Wet ---	0.0-2.3: Wet ---	0.0-2.3: Wet ---	0.0-0.5: Moist 0.5-2.3: Wet	0.0-1.0: Moist 1.0-2.3: Wet	0.0-2.0: Moist 2.0-2.3: Wet	0.0-1.5: Moist 1.5-2.3: Wet	0.0-2.3: Wet ---	0.0-2.3: Wet ---	0.0-2.3: Wet ---
91:												
Cathro----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Lupton----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
93A:												
Ruse----------	0.0-1.2: Wet ---	0.0-1.2: Wet ---	0.0-1.2: Wet ---	0.0-1.2: Wet ---	0.0-1.2: Wet ---	0.0-0.5: Moist 0.5-1.2: Wet	0.0-1.0: Moist 1.0-1.2: Wet	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Wet ---	0.0-1.2: Wet ---	0.0-1.2: Wet ---
Ensign----------	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.0: Moist 1.0-1.2: Wet	0.0-0.5: Moist 0.5-1.2: Wet	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.0: Moist 1.0-1.2: Wet	0.0-1.0: Moist 1.0-1.2: Wet	0.0-1.2: Moist ---
98B:												
Guardlake-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
98D:												
Guardlake-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
98E:												
Guardlake-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
116F:												
Udipsamments.												
Udorthents.												
119.												
Landfill												
120A:												
Charlevoix------	0.0-1.5: Moist 1.5-7.0: Wet ---	0.0-1.5: Moist 1.5-7.0: Wet ---	0.0-1.5: Moist 1.5-7.0: Wet ---	0.0-0.5: Moist 1.0-7.0: Wet ---	0.0-0.5: Moist 0.5-7.0: Wet ---	0.0-2.0: Moist 2.0-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-7.0: Wet	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-1.5: Moist 1.5-7.0: Wet ---	0.0-1.0: Moist 1.0-7.0: Wet ---	0.0-1.0: Moist 1.0-7.0: Wet ---
Ensley----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---
122A:												
Wormet----------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
123:												
Minocqua--------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
125B:												
Stutts----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Kalkaska--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
125D:												
Stutts----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Kalkaska--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
125E:												
Stutts----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Kalkaska--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
131B:												
Furlong---------	0.0-1.8: Moist ---	0.0-1.8: Moist ---	0.0-1.8: Moist ---	0.0-1.8: Moist ---	0.0-1.8: Moist ---	0.0-1.8: Moist ---	0.0-1.0: Dry 1.0-1.8: Moist	0.0-1.5: Dry 1.5-1.8: Moist	0.0-1.8: Moist ---	0.0-1.8: Moist ---	0.0-1.8: Moist ---	0.0-1.8: Moist ---
Shingleton------	0.0-1.4: Moist ---	0.0-1.4: Moist ---	0.0-1.4: Moist ---	0.0-1.4: Moist ---	0.0-1.4: Moist ---	0.0-1.4: Moist ---	0.0-1.0: Dry 1.0-1.4: Moist	0.0-1.4: Dry ---	0.0-1.4: Moist ---	0.0-1.4: Moist ---	0.0-1.4: Moist ---	0.0-1.4: Moist ---
141A:												
Halfaday--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
145B:												
Noseum----------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.0: Dry 1.0-4.5: Moist 4.5-6.7: Wet	0.0-1.5: Dry 1.5-5.5: Moist 5.5-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-3.3: Moist 3.3-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-4.5: Moist 4.5-6.7: Wet ---
155B:												
Karlin----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
160B:												
Paquin----------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Finch----------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
218. Pits, quarry												
219B:												
Cublake----------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
222:												
Histosols--------	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet
Aquents----------	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
225B:												
Cusino----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
248B:												
Escanaba--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Greylock--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
249A:												
Iosco----------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
267A:												
Finch----------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
287B:												
Hiawatha--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.0: Moist 6.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-6.0: Moist 6.0-6.7: Wet	0.0-6.3: Dry 6.3-6.7: Moist	0.0-0.5: Dry 0.5-6.7: Moist	0.0-0.5: Dry 0.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
289B:												
Wallace---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
289D:												
Wallace---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
289E:												
Wallace---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
294B:												
Munising--------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist --- ---	0.0-1.0: Dry 1.0-6.7: Moist ---	0.0-1.5: Dry 1.5-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist --- ---
Yalmer----------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.5: Wet 2.5-6.7: Moist	0.0-1.0: Moist 1.0-2.5: Wet 2.5-6.7: Moist	0.0-1.5: Moist 1.5-2.5: Wet 2.5-6.7: Moist	0.0-6.7: Moist --- ---	0.0-2.0: Dry 2.0-6.7: Moist ---	0.0-3.0: Dry 3.0-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-2.0: Moist 2.0-2.5: Wet 2.5-7.0: Moist	0.0-1.5: Moist 1.5-2.5: Wet 2.5-7.0: Moist	0.0-7.0: Moist --- ---
Frohling--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
295E:												
Dillingham------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Kalkaska--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
355B:												
Springlake------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
366B:												
Gilchrist--------	0.0-6.7: Moist --- --- ---	0.0-6.7: Moist --- --- ---	0.0-1.5: Moist 1.5-2.2: Wet 2.2-6.7: Moist	0.0-1.0: Moist 1.0-2.2: Wet 2.2-6.7: Moist	0.0-1.5: Moist 1.5-2.2: Wet 2.2-6.7: Moist	0.0-6.7: Moist --- --- ---	0.0-1.0: Dry 1.0-6.7: Moist --- ---	0.0-1.5: Dry 1.5-6.7: Moist --- ---	0.0-6.7: Moist --- --- ---	0.0-2.0: Moist 2.0-2.2: Wet 2.2-6.7: Moist	0.0-1.5: Moist 1.5-2.2: Wet 2.2-6.7: Moist	0.0-6.7: Moist --- --- ---
367B:												
Cozy----------	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.0: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.0: Moist	0.0-6.7: Moist --- ---	0.0-1.0: Moist 1.0-1.5: Wet 1.5-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.0: Dry 1.0-6.7: Moist ---	0.0-1.5: Dry 1.5-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---
400B:												
Amadon----------	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.0: Dry 1.0-1.2: Moist	0.0-1.2: Dry ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---	0.0-1.2: Moist ---
Rock outcrop.												
401A:												
Ingalls---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
490B:												
Pelkie----------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.5: Moist 4.5-6.7: Wet ---
Arnheim---------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
491B:												
Neconish--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Wainola---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
492D:												
Wurtsmith-------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Duck----------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Rubicon---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
493A:												
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
493A:												
Meehan----------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
Seney----------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
498B:												
Bursaw----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-3.7: Moist 3.7-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.7: Moist 3.7-6.7: Wet	0.0-0.5: Dry 0.5-6.7: Moist	0.0-0.5: Dry 0.5-6.7: Moist	0.0-6.7: Moist ---	0.0-3.7: Moist 3.7-6.7: Wet	0.0-3.7: Moist 3.7-6.7: Wet	0.0-6.7: Moist ---
Beavertail------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---
505B:												
Graveraet-------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-0.5: Dry 0.5-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist --- ---
505D:												
Graveraet-------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-0.5: Dry 0.5-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist --- ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
512A:												
Growton---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---
514B:												
Kalkaska--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
514D:												
Kalkaska--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
514E:												
Kalkaska--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
515B:												
Vilas----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
516A:												
Deford----------	0.0-4.0: Moist 4.0-6.7: Wet	0.0-4.0: Moist 4.0-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.0: Moist 4.0-6.7: Wet	0.0-4.4: Moist 4.4-6.7: Wet	0.0-4.0: Moist 4.0-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.0: Moist 4.0-6.7: Wet
Meehan----------	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-4.0: Moist 4.0-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.0: Moist 4.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-4.0: Moist 4.0-6.7: Wet	0.0-4.0: Moist 4.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
517B:												
Mancelona-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
517D:												
Mancelona-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
518A:												
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Seney-----------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
519B:												
Trenary---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
520B:												
Rubicon---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Sultz-----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
520D:												
Rubicon---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
520D:												
Sultz----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
525B:												
Neconish--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Kinross---------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Wainola---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
526B:												
Graveraet-------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-0.5: Dry 0.5-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist --- ---
Angelica--------	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet
527B:												
Islandlake------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
527B:												
McMillan--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
527D:												
Islandlake------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
McMillan--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
527E:												
Islandlake------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
McMillan--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
531B:												
Greylock--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
531D:												
Greylock--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
532:												
Angelica--------	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
534:												
Pickford--------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Wet 1.5-6.7: Moist ---	0.0-1.5: Wet 1.5-6.7: Moist ---	0.0-1.5: Wet 1.5-6.7: Moist ---	0.0-0.5: Moist 0.5-1.5: Wet 1.5-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-0.5: Moist 0.5-1.5: Wet 1.5-6.7: Moist	0.0-1.5: Wet 1.5-6.7: Moist ---	0.0-1.5: Wet 1.5-6.7: Moist ---	0.0-6.7: Moist --- ---
535B:												
Trenary---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
535D:												
Trenary---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
536B:												
Menominee-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
537B:												
McMillan--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
537D:												
McMillan--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
538B:												
Menominee-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
538B:												
McMillan--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
540D:												
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Rubicon---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Au Gres---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
541D:												
Kinross---------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Au Gres---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
Rubicon---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
543B:												
Auger----------	0.0-5.5: Moist 5.5-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-0.5: Dry 0.5-6.0: Moist 6.0-6.7: Wet	0.0-0.5: Dry 0.5-6.7: Moist ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---	0.0-4.5: Moist 4.5-6.7: Wet ---
546B:												
Kalkaska--------	0.0-7.3: Moist 7.3-15.0: Wet ---	0.0-7.3: Moist 7.3-15.0: Wet ---	0.0-4.8: Moist 4.8-15.0: Wet ---	0.0-4.3: Moist 4.3-15.0: Wet ---	0.0-4.3: Moist 4.3-15.0: Wet ---	0.0-5.2: Moist 5.2-15.0: Wet ---	0.0-2.0: Dry 2.0-6.2: Moist 6.2-15.0: Wet	0.0-3.0: Dry 3.0-7.2: Moist 7.2-15.0: Wet	0.0-6.2: Moist 6.2-15.0: Wet ---	0.0-4.7: Moist 4.7-15.0: Wet ---	0.0-4.7: Moist 4.7-15.0: Wet ---	0.0-5.7: Moist 5.7-15.0: Wet ---
546D:												
Kalkaska--------	0.0-7.3: Moist 7.3-15.0: Wet ---	0.0-7.3: Moist 7.3-15.0: Wet ---	0.0-4.8: Moist 4.8-15.0: Wet ---	0.0-4.3: Moist 4.3-15.0: Wet ---	0.0-4.3: Moist 4.3-15.0: Wet ---	0.0-5.2: Moist 5.2-15.0: Wet ---	0.0-2.0: Dry 2.0-6.2: Moist 6.2-15.0: Wet	0.0-3.0: Dry 3.0-7.2: Moist 7.2-15.0: Wet	0.0-6.2: Moist 6.2-15.0: Wet ---	0.0-4.7: Moist 4.7-15.0: Wet ---	0.0-4.7: Moist 4.7-15.0: Wet ---	0.0-5.7: Moist 5.7-15.0: Wet ---
547B:												
Rubicon---------	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.7: Moist 9.7-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-2.0: Dry 2.0-12.4: Moist 12.4-15.0: Wet	0.0-3.0: Dry 3.0-12.5: Moist 12.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---
547D:												
Rubicon---------	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.7: Moist 9.7-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-2.0: Dry 2.0-12.4: Moist 12.4-15.0: Wet	0.0-3.0: Dry 3.0-12.5: Moist 12.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---
548B:												
McMillan--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
548B:												
Trenary---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
549B:												
Islandlake------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
549D:												
Islandlake------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
549E:												
Islandlake------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
551B:												
Kalkaska--------	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.7: Moist 9.7-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-2.0: Dry 2.0-12.4: Moist 12.4-15.0: Wet	0.0-3.0: Dry 3.0-12.5: Moist 12.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---
551D:												
Kalkaska--------	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.7: Moist 9.7-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-2.0: Dry 2.0-12.4: Moist 12.4-15.0: Wet	0.0-3.0: Dry 3.0-12.5: Moist 12.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---
553:												
Carbondale------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
553:												
Loxley----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
554B:												
Duck----------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Halfaday--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
555D:												
Hiawatha--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.0: Moist 6.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-6.0: Moist 6.0-6.7: Wet	0.0-6.3: Dry 6.3-6.7: Moist	0.0-0.5: Dry 0.5-6.7: Moist	0.0-0.5: Dry 0.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Deer Park-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Rubicon---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
557B:												
Kalkaska--------	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.7: Moist 9.7-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-2.0: Dry 2.0-12.4: Moist 12.4-15.0: Wet	0.0-3.0: Dry 3.0-12.5: Moist 12.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
557D:												
Kalkaska--------	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.7: Moist 9.7-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-2.0: Dry 2.0-12.4: Moist 12.4-15.0: Wet	0.0-3.0: Dry 3.0-12.5: Moist 12.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---
558B:												
Islandlake------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
558D:												
Islandlake------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
559B:												
Kalkaska--------	0.0-7.3: Moist 7.3-15.0: Wet	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
560B:												
Islandlake------	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.7: Moist 9.7-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-2.0: Dry 2.0-12.4: Moist 12.4-15.0: Wet	0.0-3.0: Dry 3.0-12.5: Moist 12.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-9.2: Moist 9.2-15.0: Wet ---	0.0-10.5: Moist 10.5-15.0: Wet ---
561A:												
Croswell--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
562B:												
Croswell--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Kinross---------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
563B:												
Halfaday--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Kinross---------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
564A:												
Ingalls---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
565B:												
Rubicon---------	0.0-7.3: Moist 7.3-15.0: Wet ---	0.0-7.3: Moist 7.3-15.0: Wet ---	0.0-4.8: Moist 4.8-15.0: Wet ---	0.0-4.3: Moist 4.3-15.0: Wet ---	0.0-4.3: Moist 4.3-15.0: Wet ---	0.0-5.2: Moist 5.2-15.0: Wet ---	0.0-2.0: Dry 2.0-6.2: Moist 6.2-15.0: Wet	0.0-3.0: Dry 3.0-7.2: Moist 7.2-15.0: Wet	0.0-6.2: Moist 6.2-15.0: Wet ---	0.0-4.7: Moist 4.7-15.0: Wet ---	0.0-4.7: Moist 4.7-15.0: Wet ---	0.0-5.7: Moist 5.7-15.0: Wet ---

Table 19.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
565D:												
Rubicon---------	0.0-7.3: Moist 7.3-15.0: Wet ---	0.0-7.3: Moist 7.3-15.0: Wet ---	0.0-4.8: Moist 4.8-15.0: Wet ---	0.0-4.3: Moist 4.3-15.0: Wet ---	0.0-4.3: Moist 4.3-15.0: Wet ---	0.0-5.2: Moist 5.2-15.0: Wet ---	0.0-2.0: Dry 2.0-6.2: Moist 6.2-15.0: Wet	0.0-3.0: Dry 3.0-7.2: Moist 7.2-15.0: Wet	0.0-6.2: Moist 6.2-15.0: Wet ---	0.0-4.7: Moist 4.7-15.0: Wet ---	0.0-4.7: Moist 4.7-15.0: Wet ---	0.0-5.7: Moist 5.7-15.0: Wet ---
W.												
Water												

Table 20.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
10B:										
Amadon----------	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Rock outcrop.										
11B:										
Kalkaska----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
12B:										
Rubicon----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
12D:										
Rubicon----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
12E:										
Rubicon----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
12F:										
Rubicon----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
13B:										
Kalkaska----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
13D:										
Kalkaska----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
13E:										
Kalkaska----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
13F:										
Kalkaska----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
16A:										
Paquin----------	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
17A:										
Au Gres----------	B	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
18:										
Kinross	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		May	0.5	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
19A:										
Au Gres	B	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
Deford	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
20E:										
Rousseau	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Neconish	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Finch	C	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
21B:										
Garlic	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
21D:										
Garlic	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
21E:										
Garlic----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
22E:										
Rousseau----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Neconish----------	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Deford----------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
24B:										
Rousseau----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
24D:										
Rousseau----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
24E:										
Rousseau----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
25B:										
Proper----------	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
26A:										
Spot----------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
26A:										
Finch	C	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
27A:										
Hendrie	D	Jan-Feb	0.5	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.0	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Nov	0.5	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.5	>6.0	Apparent	---	---	None	---	None
Annanias	C	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr	0.5	>6.0	Apparent	---	---	None	---	None
		May	1.0	>6.0	Apparent	---	---	None	---	None
		Jun	2.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.5	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.5	>6.0	Apparent	---	---	None	---	None
		Oct	2.0	>6.0	Apparent	---	---	None	---	None
		Nov-Dec	1.5	>6.0	Apparent	---	---	None	---	None
30:										
Hendrie	D	Jan-Feb	0.5	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.0	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Nov	0.5	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.5	>6.0	Apparent	---	---	None	---	None
33:										
Pits, sand and gravel	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
34B:										
Liminga	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
34E:										
Liminga	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
36:										
Carbondale----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Lupton----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Tawas----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
37:										
Dawson----------	D	Jan-Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul-Aug	0.5	>6.0	Apparent	---	---	None	---	None
		Sep	0.0	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
Greenwood----------	D	Jan-Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul-Aug	0.5	>6.0	Apparent	---	---	None	---	None
		Sep	0.0	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
Loxley----------	D	Jan-Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul-Aug	0.5	>6.0	Apparent	---	---	None	---	None
		Sep	0.0	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent	---	None
		Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
43:										
Ensley----------	B/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Jul	1.0	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct	0.5	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
56B:										
Shuberts----------	D	Jan-Feb	0.0	2.1-2.1	Perched	---	---	---	---	None
		Mar	0.0	2.1-2.1	Perched	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	2.1-2.1	Perched	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	2.1-2.1	Perched	---	---	---	---	None
		Jul	1.0	2.1-2.1	Perched	---	---	---	---	None
		Aug	2.0	2.1-2.1	Perched	---	---	---	---	None
		Sep	1.5	2.1-2.1	Perched	---	---	---	---	None
		Oct-Nov	0.0	2.1-2.1	Perched	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	2.1-2.1	Perched	---	---	---	---	None
Wurtsmith----------	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Meehan----------	A	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
61A:										
Ingalls----------	C	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
61A:										
Caffey----------	D	Jan-Feb	0.5	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.5	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.5	>6.0	Apparent	---	---	None	---	None
62B:										
McMillan----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Greylock----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
62D:										
McMillan----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Greylock----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
62E:										
Greylock----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
McMillan----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
63:										
Deford----------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
65:										
Ausable, frequently flooded----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	---	---	None	Brief	Occasional
		Apr-May	0.0	>6.0	Apparent	---	---	None	Long	Frequent
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	---	---	None	Brief	Frequent
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Deford, frequently flooded----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	---	---	None	Brief	Occasional
		Apr-May	0.0	>6.0	Apparent	---	---	None	Long	Frequent
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	---	---	None	Brief	Frequent
		Dec	0.0	>6.0	Apparent	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
65:										
Tawas, frequently flooded----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	---	---	None	Brief	Occasional
		Apr-May	0.0	>6.0	Apparent	---	---	None	Long	Frequent
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	---	---	None	Brief	Frequent
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
66:										
Markey----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
67B:										
Pelkie, occasionally flooded----------	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	---
		Mar	2.5	>6.0	Apparent	---	---	None	Brief	Occasional
		Apr-May	2.0	>6.0	Apparent	---	---	None	Brief	Occasional
		Jun	3.5	>6.0	Apparent	---	---	None	---	---
		Jul	4.5	>6.0	Apparent	---	---	None	---	---
		Aug	5.5	>6.0	Apparent	---	---	None	---	---
		Sep	4.5	>6.0	Apparent	---	---	None	---	---
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	---
		Dec	4.5	>6.0	Apparent	---	---	None	---	---
Deford, frequently flooded----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	---	---	None	Brief	Occasional
		Apr-May	0.0	>6.0	Apparent	---	---	None	Long	Frequent
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	---	---	None	Brief	Frequent
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
68F:										
Deer Park----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
69:										
Ruse----------	D	Jan-Feb	0.0	1.2-1.2	Perched	---	---	None	---	None
		Mar	0.0	1.2-1.2	Perched	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	1.2-1.2	Perched	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	1.2-1.2	Perched	---	---	None	---	None
		Jul	1.0	1.2-1.2	Perched	---	---	None	---	None
		Aug-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Nov	0.0	1.2-1.2	Perched	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	1.2-1.2	Perched	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
70F:										
Deer Park----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Deford----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	---	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	---	---	None
		Jul	1.5	>6.0	Apparent	---	---	---	---	None
		Aug	2.0	>6.0	Apparent	---	---	---	---	None
		Sep	1.0	>6.0	Apparent	---	---	---	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	---	---	None
Tawas----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
72:										
Spot----------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
73B:										
Graveraet----------	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.0-2.0	Perched	---	---	None	---	None
		Apr	1.0	2.0-2.0	Perched	---	---	None	---	None
		May	1.5	2.0-2.0	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Nov	1.5	2.0-2.0	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Gulliver----------	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	2.0	4.8-4.8	Perched	---	---	None	---	None
		Apr	1.5	4.8-4.8	Perched	---	---	None	---	None
		May	2.0	4.8-4.8	Perched	---	---	None	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	None	---	None
76A:										
Shuberts----------	D	Jan-Feb	0.0	2.1-2.1	Perched	---	---	---	---	None
		Mar	0.0	2.1-2.1	Perched	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	2.1-2.1	Perched	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	2.1-2.1	Perched	---	---	---	---	None
		Jul	1.0	2.1-2.1	Perched	---	---	---	---	None
		Aug	2.0	2.1-2.1	Perched	---	---	---	---	None
		Sep	1.5	2.1-2.1	Perched	---	---	---	---	None
		Oct-Nov	0.0	2.1-2.1	Perched	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	2.1-2.1	Perched	---	---	---	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
76A:										
Manistique----------	C	Jan-Feb	2.0	2.3-2.3	Perched	---	---	---	---	None
		Mar	1.5	2.3-2.3	Perched	---	---	---	---	None
		Apr	1.0	2.3-2.3	Perched	---	---	---	---	None
		May	0.5	2.3-2.3	Perched	---	---	---	---	None
		Jun	2.0	2.3-2.3	Perched	---	---	---	---	None
		Jul-Sep	>6.0	>6.0	---	---	---	---	---	None
		Oct-Nov	1.0	2.3-2.3	Perched	---	---	---	---	None
		Dec	1.5	2.3-2.3	Perched	---	---	---	---	None
78B:										
Heinz----------	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
80F:										
Deer Park----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Dawson----------	D	Jan-Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul-Aug	0.5	>6.0	Apparent	---	---	None	---	None
		Sep	0.0	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
Wainola----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
84:										
Dawson----------	D	Jan-Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul-Aug	0.5	>6.0	Apparent	---	---	None	---	None
		Sep	0.0	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
Kinross----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		May	0.5	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
86B:										
Wurtsmith----------	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Tawas----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Deford----------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
87B:										
Longrie----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Amadon----------	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
87D:										
Amadon----------	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Longrie----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
87E:										
Amadon----------	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Longrie----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Rock outcrop.										
88B:										
Cookson----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Amadon----------	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
89B:										
Cookson----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Trenary----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
90:										
Chippeny----------	B/D	Jan-Feb	0.0	2.3-2.3	Perched	---	---	None	---	None
		Mar	0.0	2.3-2.3	Perched	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	2.3-2.3	Perched	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	2.3-2.3	Perched	---	---	None	---	None
		Jul	1.0	2.3-2.3	Perched	---	---	None	---	None
		Aug	2.0	2.3-2.3	Perched	---	---	None	---	None
		Sep	1.5	2.3-2.3	Perched	---	---	None	---	None
		Oct-Nov	0.0	2.3-2.3	Perched	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	2.3-2.3	Perched	---	---	None	---	None
91:										
Cathro----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Lupton----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
93A:										
Ruse----------	D	Jan-Feb	0.0	1.2-1.2	Perched	---	---	None	---	None
		Mar	0.0	1.2-1.2	Perched	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	1.2-1.2	Perched	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	1.2-1.2	Perched	---	---	None	---	None
		Jul	1.0	1.2-1.2	Perched	---	---	None	---	None
		Aug-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Nov	0.0	1.2-1.2	Perched	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	1.2-1.2	Perched	---	---	None	---	None
Ensign----------	D	Jan-Mar	>6.0	>6.0	---	---	---	None	---	None
		Apr	1.0	1.2-1.2	Perched	---	---	None	---	None
		May	0.5	1.2-1.2	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Nov	1.0	1.2-1.2	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
98B:										
Guardlake----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
98D:										
Guardlake----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
98E:										
Guardlake----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
116F:										
Udipsamments----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Udorthents----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
119. Landfill										
120A:										
Charlevoix----------	C	Jan-Mar	1.5	>6.0	Apparent	---	---	None	---	None
		Apr	1.0	>6.0	Apparent	---	---	None	---	None
		May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	2.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.5	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.5	>6.0	Apparent	---	---	None	---	None
		Oct	1.5	>6.0	Apparent	---	---	None	---	None
		Nov-Dec	1.0	>6.0	Apparent	---	---	None	---	None
Ensley----------	B/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Jul	1.0	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct	0.5	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
122A:										
Wormet----------	B	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
123:										
Minocqua----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
125B:										
Stutts----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Kalkaska----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
125D:										
Stutts----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Kalkaska----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
125E:										
Stutts----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Kalkaska----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
131B:										
Furlong	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Shingleton	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
141A:										
Halfaday	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
145B:										
Noseum	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	5.0	>6.0	Apparent	---	---	None	---	None
		Oct	3.3	>6.0	Apparent	---	---	None	---	None
		Nov	2.5	>6.0	Apparent	---	---	None	---	None
		Dec	4.5	>6.0	Apparent	---	---	None	---	None
155B:										
Karlin	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
160B:										
Paquin	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Finch	C	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
218.										
Pits, quarry										

Table 20.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
219B:										
Cublake	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
222:										
Histosols	D	Jan-Dec	0.0	>6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
Aquents	D	Jan-Dec	0.0	>6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
225B:										
Cusino	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
248B:										
Escanaba	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Greylock	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
249A:										
Iosco	C	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
267A:										
Finch	C	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
287B:										
Hiawatha	A	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	6.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	5.0	>6.0	Apparent	---	---	None	---	None
		Jun	6.0	>6.0	Apparent	---	---	None	---	None
		Jul-Dec	>6.0	>6.0	---	---	---	None	---	None
289B:										
Wallace	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
289D:										
Wallace	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
289E:										
Wallace	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
294B:										
Munising, calcareous substratum	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.0-2.0	Perched	---	---	None	---	None
		Apr	1.0	2.0-2.0	Perched	---	---	None	---	None
		May	1.5	2.0-2.0	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Nov	1.5	2.0-2.0	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Yalmer, calcareous substratum	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.5-2.5	Perched	---	---	None	---	None
		Apr	1.0	2.5-2.5	Perched	---	---	None	---	None
		May	1.5	2.5-2.5	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	2.0	2.5-2.5	Perched	---	---	None	---	None
		Nov	1.5	2.5-2.5	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Frohling, calcareous substratum	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
295E:										
Dillingham	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Kalkaska	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
355B:										
Springlake	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
366B:										
Gilchrist	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.2-2.2	Perched	---	---	None	---	None
		Apr	1.0	2.2-2.2	Perched	---	---	None	---	None
		May	1.5	2.2-2.2	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	2.0	2.2-2.2	Perched	---	---	None	---	None
		Nov	1.5	2.2-2.2	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
367B:										
Cozy	C	Jan-Feb	1.0-2.0	1.5-2.5	Perched	---	---	None	---	None
		Mar	>6.0	>6.0	---	---	---	None	---	None
		Apr	1.0	1.5-1.5	Perched	---	---	None	---	None
		May-Dec	>6.0	>6.0	---	---	---	None	---	None
400B:										
Amadon	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Rock outcrop.										
401A:										
Ingalls	C	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
490B:										
Pelkie, occasionally flooded----------	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	---
		Mar	2.5	>6.0	Apparent	---	---	None	Brief	Occasional
		Apr-May	2.0	>6.0	Apparent	---	---	None	Brief	Occasional
		Jun	3.5	>6.0	Apparent	---	---	None	---	---
		Jul	4.5	>6.0	Apparent	---	---	None	---	---
		Aug	5.5	>6.0	Apparent	---	---	None	---	---
		Sep	4.5	>6.0	Apparent	---	---	None	---	---
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	---
		Dec	4.5	>6.0	Apparent	---	---	None	---	---
Arnheim, frequently flooded----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	---
		Mar-May	0.0	>6.0	Apparent	---	---	None	Long	Frequent
		Jun	0.5	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	---
		Jul	1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	---
		Aug	2.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	---
		Sep	1.5	>6.0	Apparent	0.0-0.5	Long	Frequent	---	---
		Oct	0.5	>6.0	Apparent	0.0-0.5	Long	Frequent	---	---
		Nov	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	---
		Dec	0.0	>6.0	Apparent	---	---	None	---	---
491B:										
Neconish----------	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Deford, rarely flooded	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.5-0.5	Brief	Occasional	Brief	Rare
		Apr-May	0.0	>6.0	Apparent	0.5-0.5	Long	Frequent	Brief	Rare
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Oct	0.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	Brief	Rare
		Nov-Dec	0.0	>6.0	Apparent	---	---	None	---	None
Wainola----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
492D:										
Wurtsmith----------	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
492D:										
Duck	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Rubicon	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
493A:										
Deford	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Meehan	A	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
Seney	A	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
498B:										
Bursaw	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	3.7	>6.0	Apparent	---	---	None	---	None
		Apr	2.8	>6.0	Apparent	---	---	None	---	None
		May	2.6	>6.0	Apparent	---	---	None	---	None
		Jun	3.7	>6.0	Apparent	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Nov	3.7	>6.0	Apparent	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
498B:										
Beavertail----------	B/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Jul	1.0	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct	0.5	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
505B:										
Graveraet----------	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.0-2.0	Perched	---	---	None	---	None
		Apr	1.0	2.0-2.0	Perched	---	---	None	---	None
		May	1.5	2.0-2.0	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Nov	1.5	2.0-2.0	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
505D:										
Graveraet----------	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.0-2.0	Perched	---	---	None	---	None
		Apr	1.0	2.0-2.0	Perched	---	---	None	---	None
		May	1.5	2.0-2.0	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Nov	1.5	2.0-2.0	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
512A:										
Growton----------	C	Jan-Mar	1.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	2.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.5	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.5	>6.0	Apparent	---	---	None	---	None
		Oct	1.5	>6.0	Apparent	---	---	None	---	None
		Nov-Dec	1.0	>6.0	Apparent	---	---	None	---	None
514B:										
Kalkaska, burned------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
514D:										
Kalkaska, burned------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
514E:										
Kalkaska, burned------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
515B:										
Vilas----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
516A:										
Deford, drained-------	A/D	Jan-Feb	4.0	>6.0	Apparent	---	---	None	---	None
		Mar	3.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.0	>6.0	Apparent	---	---	None	---	None
		Jul	4.0	>6.0	Apparent	---	---	None	---	None
		Aug	4.4	>6.0	Apparent	---	---	None	---	None
		Sep	4.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Meehan, drained-------	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	4.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	3.0	>6.0	Apparent	---	---	None	---	None
		Jun	4.0	>6.0	Apparent	---	---	None	---	None
		Jul-Sep	5.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	4.0	>6.0	Apparent	---	---	None	---	None
		Dec	5.0	>6.0	Apparent	---	---	None	---	None
517B:										
Mancelona----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
517D:										
Mancelona----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
518A:										
Deford, frequently flooded----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	---	---	None	Brief	Occasional
		Apr-May	0.0	>6.0	Apparent	---	---	None	Long	Frequent
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	---	---	None	Brief	Frequent
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Seney, frequently flooded----------	A	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	Brief	Occasional
		Apr-May	0.5	>6.0	Apparent	---	---	None	Long	Frequent
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	Brief	Occasional
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
519B:										
Trenary----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
520B:										
Rubicon----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Sultz----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
520D:										
Rubicon----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Sultz----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
525B:										
Neconish----------	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Kinross----------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		May	0.5	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Wainola----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
526B:										
Graveraet----------	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.0-2.0	Perched	---	---	None	---	None
		Apr	1.0	2.0-2.0	Perched	---	---	None	---	None
		May	1.5	2.0-2.0	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Nov	1.5	2.0-2.0	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Angelica----------	D	Jan-Feb	0.5	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.0	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Nov	0.5	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.5	>6.0	Apparent	---	---	None	---	None
527B:										
Islandlake----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
McMillan----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
527D:										
Islandlake----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
McMillan----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
527E:										
Islandlake----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
McMillan----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
531B:										
Greylock----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
531D:										
Greylock----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
532:										
Angelica----------	D	Jan-Feb	0.5	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.0	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Nov	0.5	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.5	>6.0	Apparent	---	---	None	---	None
534:										
Pickford----------	D	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	0.0	1.5-1.5	Perched	0.0-0.5	Brief	Occasional	---	None
		Apr	0.0	1.5-1.5	Perched	0.0-0.5	Long	Frequent	---	None
		May	0.0	1.5-1.5	Perched	0.0-0.5	Brief	Frequent	---	None
		Jun	0.5	1.5-1.5	Perched	---	---	None	---	None
		Jul-Aug	>6.0	>6.0	---	---	---	None	---	None
		Sep	0.5	1.5-1.5	Perched	---	---	None	---	None
		Oct	0.0	1.5-1.5	Perched	0.0-0.5	Brief	Occasional	---	None
		Nov	0.0	1.5-1.5	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
535B:										
Trenary----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
535D:										
Trenary----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
536B:										
Menominee, sandy substratum----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
537B:										
McMillan----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
537D:										
McMillan----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
538B:										
Menominee, sandy substratum----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
McMillan----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
540D:										
Deford----------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Rubicon----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
540D:										
Au Gres----------	B	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
541D:										
Kinross----------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		May	0.5	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Au Gres----------	B	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
Rubicon----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
543B:										
Auger, sandy substratum----------	B	Jan	5.5	>6.0	Apparent	---	---	None	---	None
		Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	3.0	>6.0	Apparent	---	---	None	---	None
		Apr	2.5	>6.0	Apparent	---	---	None	---	None
		May	3.0	>6.0	Apparent	---	---	None	---	None
		Jun	4.5	>6.0	Apparent	---	---	None	---	None
		Jul	6.0	>6.0	Apparent	---	---	None	---	None
		Aug	>6.0	>6.0	---	---	---	None	---	None
		Sep	5.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	4.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.5	>6.0	Apparent	---	---	None	---	None
546B:										
Kalkaska, deep water table----------	A	Jan-Feb	7.3	>6.0	Apparent	---	---	None	---	None
		Mar	4.8	>6.0	Apparent	---	---	None	---	None
		Apr-May	4.3	>6.0	Apparent	---	---	None	---	None
		Jun	5.2	>6.0	Apparent	---	---	None	---	None
		Jul	6.2	>6.0	Apparent	---	---	None	---	None
		Aug	7.2	>6.0	Apparent	---	---	None	---	None
		Sep	6.2	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	4.7	>6.0	Apparent	---	---	None	---	None
		Dec	5.7	>6.0	Apparent	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
546D:										
Kalkaska, deep water table----------	A	Jan-Feb	7.3	>6.0	Apparent	---	---	None	---	None
		Mar	4.8	>6.0	Apparent	---	---	None	---	None
		Apr-May	4.3	>6.0	Apparent	---	---	None	---	None
		Jun	5.2	>6.0	Apparent	---	---	None	---	None
		Jul	6.2	>6.0	Apparent	---	---	None	---	None
		Aug	7.2	>6.0	Apparent	---	---	None	---	None
		Sep	6.2	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	4.7	>6.0	Apparent	---	---	None	---	None
		Dec	5.7	>6.0	Apparent	---	---	None	---	None
547B:										
Rubicon, very deep water table----------	A	Jan-Feb	10.5	>6.0	Apparent	---	---	None	---	None
		Mar	9.7	>6.0	Apparent	---	---	None	---	None
		Apr-May	9.2	>6.0	Apparent	---	---	None	---	None
		Jun	10.5	>6.0	Apparent	---	---	None	---	None
		Jul	12.4	>6.0	Apparent	---	---	None	---	None
		Aug	12.5	>6.0	Apparent	---	---	None	---	None
		Sep	10.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	9.2	>6.0	Apparent	---	---	None	---	None
		Dec	10.5	>6.0	Apparent	---	---	None	---	None
547D:										
Rubicon, very deep water table----------	A	Jan-Feb	10.5	>6.0	Apparent	---	---	None	---	None
		Mar	9.7	>6.0	Apparent	---	---	None	---	None
		Apr-May	9.2	>6.0	Apparent	---	---	None	---	None
		Jun	10.5	>6.0	Apparent	---	---	None	---	None
		Jul	12.4	>6.0	Apparent	---	---	None	---	None
		Aug	12.5	>6.0	Apparent	---	---	None	---	None
		Sep	10.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	9.2	>6.0	Apparent	---	---	None	---	None
		Dec	10.5	>6.0	Apparent	---	---	None	---	None
548B:										
McMillan----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Trenary----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
549B:										
Islandlake----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
549D:										
Islandlake----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
549E:										
Islandlake----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
551B:										
Kalkaska, very deep water table----------	A	Jan-Feb	10.5	>6.0	Apparent	---	---	None	---	None
		Mar	9.7	>6.0	Apparent	---	---	None	---	None
		Apr-May	9.2	>6.0	Apparent	---	---	None	---	None
		Jun	10.5	>6.0	Apparent	---	---	None	---	None
		Jul	12.4	>6.0	Apparent	---	---	None	---	None
		Aug	12.5	>6.0	Apparent	---	---	None	---	None
		Sep	10.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	9.2	>6.0	Apparent	---	---	None	---	None
		Dec	10.5	>6.0	Apparent	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
551D:										
Kalkaska, very deep water table----------	A	Jan-Feb	10.5	>6.0	Apparent	---	---	None	---	None
		Mar	9.7	>6.0	Apparent	---	---	None	---	None
		Apr-May	9.2	>6.0	Apparent	---	---	None	---	None
		Jun	10.5	>6.0	Apparent	---	---	None	---	None
		Jul	12.4	>6.0	Apparent	---	---	None	---	None
		Aug	12.5	>6.0	Apparent	---	---	None	---	None
		Sep	10.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	9.2	>6.0	Apparent	---	---	None	---	None
		Dec	10.5	>6.0	Apparent	---	---	None	---	None
553:										
Carbondale----------	D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Loxley----------	D	Jan-Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul-Aug	0.5	>6.0	Apparent	---	---	None	---	None
		Sep	0.0	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent	---	None
		Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
554B:										
Duck----------	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Halfaday----------	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
555D:										
Hiawatha----------	A	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	6.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	5.0	>6.0	Apparent	---	---	None	---	None
		Jun	6.0	>6.0	Apparent	---	---	None	---	None
		Jul-Dec	>6.0	>6.0	---	---	---	None	---	None
Deer Park----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
555D:										
Rubicon----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
557B:										
Kalkaska, very deep water table, burned--	A	Jan-Feb	10.5	>6.0	Apparent	---	---	None	---	None
		Mar	9.7	>6.0	Apparent	---	---	None	---	None
		Apr-May	9.2	>6.0	Apparent	---	---	None	---	None
		Jun	10.5	>6.0	Apparent	---	---	None	---	None
		Jul	12.4	>6.0	Apparent	---	---	None	---	None
		Aug	12.5	>6.0	Apparent	---	---	None	---	None
		Sep	10.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	9.2	>6.0	Apparent	---	---	None	---	None
		Dec	10.5	>6.0	Apparent	---	---	None	---	None
557D:										
Kalkaska, very deep water table, burned--	A	Jan-Feb	10.5	>6.0	Apparent	---	---	None	---	None
		Mar	9.7	>6.0	Apparent	---	---	None	---	None
		Apr-May	9.2	>6.0	Apparent	---	---	None	---	None
		Jun	10.5	>6.0	Apparent	---	---	None	---	None
		Jul	12.4	>6.0	Apparent	---	---	None	---	None
		Aug	12.5	>6.0	Apparent	---	---	None	---	None
		Sep	10.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	9.2	>6.0	Apparent	---	---	None	---	None
		Dec	10.5	>6.0	Apparent	---	---	None	---	None
558B:										
Islandlake, burned----	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
558D:										
Islandlake, burned----	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
559B:										
Kalkaska, deep water table, burned-------	A	Jan	7.3	>6.0	Apparent	---	---	None	---	None
		Feb-Dec	>6.0	>6.0	---	---	---	None	---	None
560B:										
Islandlake, very deep water table----------	A	Jan-Feb	10.5	>6.0	Apparent	---	---	None	---	None
		Mar	9.7	>6.0	Apparent	---	---	None	---	None
		Apr-May	9.2	>6.0	Apparent	---	---	None	---	None
		Jun	10.5	>6.0	Apparent	---	---	None	---	None
		Jul	12.4	>6.0	Apparent	---	---	None	---	None
		Aug	12.5	>6.0	Apparent	---	---	None	---	None
		Sep	10.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	9.2	>6.0	Apparent	---	---	None	---	None
		Dec	10.5	>6.0	Apparent	---	---	None	---	None
561A:										
Croswell----------	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
562B:										
Croswell----------	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Kinross----------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		May	0.5	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
563B:										
Halfaday----------	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Kinross----------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		May	0.5	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
564A:										
Ingalls----------	C	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
565B:										
Rubicon, deep water table----------	A	Jan-Feb	7.3	>6.0	Apparent	---	---	None	---	None
		Mar	4.8	>6.0	Apparent	---	---	None	---	None
		Apr-May	4.3	>6.0	Apparent	---	---	None	---	None
		Jun	5.2	>6.0	Apparent	---	---	None	---	None
		Jul	6.2	>6.0	Apparent	---	---	None	---	None
		Aug	7.2	>6.0	Apparent	---	---	None	---	None
		Sep	6.2	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	4.7	>6.0	Apparent	---	---	None	---	None
		Dec	5.7	>6.0	Apparent	---	---	None	---	None
565D:										
Rubicon, deep water table----------	A	Jan-Feb	7.3	>6.0	Apparent	---	---	None	---	None
		Mar	4.8	>6.0	Apparent	---	---	None	---	None
		Apr-May	4.3	>6.0	Apparent	---	---	None	---	None
		Jun	5.2	>6.0	Apparent	---	---	None	---	None
		Jul	6.2	>6.0	Apparent	---	---	None	---	None
		Aug	7.2	>6.0	Apparent	---	---	None	---	None
		Sep	6.2	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	4.7	>6.0	Apparent	---	---	None	---	None
		Dec	5.7	>6.0	Apparent	---	---	None	---	None
W. Water										

Table 21.--Classification of the Soils

Soil name	Family or higher taxonomic class
Amadon	Loamy, mixed, active, frigid Lithic Haplorthods
Angelica	Fine-loamy, mixed, active, nonacid, frigid Aeric Endoaquepts
Annanias	Coarse-silty, isotic, frigid Typic Endoaquods
Aquents	Aquents
Arnheim	Coarse-loamy, mixed, superactive, nonacid, frigid Fluvaquentic Endoaquepts
Au Gres	Sandy, mixed, frigid Typic Endoaquods
Auger	Coarse-silty, isotic, frigid Oxyaquic Haplorthods
Ausable	Sandy, mixed, frigid Histic Humaquepts
Beavertail	Loamy-skeletal, carbonatic, active, frigid Histic Humaquepts
Bursaw	Sandy-skeletal, mixed, frigid Oxyaquic Udorthents
Caffey	Sandy over loamy, mixed, semiactive, nonacid, frigid Aeric Endoaquents
Carbondale	Euic, frigid Hemic Haplosaprists
Cathro	Loamy, mixed, euic, frigid Terric Haplosaprists
Charlevoix	Coarse-loamy, mixed, semiactive, frigid Argic Endoaquods
Chippeny	Euic, frigid Lithic Haplosaprists
Cookson	Coarse-loamy, mixed, active, frigid Alfic Haplorthods
Cozy	Loamy-skeletal, mixed, active, frigid Oxyaquic Haplorthods
Croswell	Sandy, mixed, frigid Oxyaquic Haplorthods
Cublake	Sandy, mixed, frigid Oxyaquic Haplorthods
Cusino	Sandy, isotic, frigid Typic Haplorthods
Dawson	Sandy or sandy-skeletal, mixed, dysic, frigid Terric Haplosaprists
Deer Park	Mixed, frigid Spodic Udipsamments
Deford	Mixed, frigid Typic Psammaquents
Dillingham	Sandy, isotic, frigid Typic Fragiorthods
Duck	Mixed, frigid Oxyaquic Udipsamments
Ensign	Loamy, mixed, superactive, frigid Lithic Eutrudepts
Ensley	Coarse-loamy, mixed, active, nonacid, frigid Aeric Endoaquents
Escanaba	Sandy over loamy, mixed, superactive, frigid Alfic Haplorthods
Finch	Sandy, mixed, frigid, shallow, ortstein Typic Duraquods
Frohling	Coarse-loamy, mixed, active, frigid Alfic Fragiorthods
Furlong	Sandy, mixed, frigid Typic Haplorthods
Garlic	Sandy, mixed, frigid, ortstein Typic Haplorthods
Gilchrist	Sandy, mixed, frigid Oxyaquic Haplorthods
Graveraet	Coarse-loamy, mixed, active, frigid Alfic Oxyaquic Fragiorthods
Greenwood	Dysic, frigid Typic Haplohemists
Greylock	Coarse-loamy, mixed, active, frigid Alfic Haplorthods
Growton	Coarse-loamy, mixed, superactive, frigid Aquic Hapludalfs
Guardlake	Sandy-skeletal, mixed, frigid Typic Haplorthods
Gulliver	Coarse-loamy, mixed, superactive, frigid Alfic Oxyaquic Haplorthods
Halfaday	Sandy, mixed, frigid Oxyaquic Haplorthods
Heinz	Sandy, mixed, frigid Oxyaquic Haplorthods
Hendrie	Coarse-silty, mixed, superactive, nonacid, frigid Aeric Endoaquepts
Hiawatha	Mixed, frigid Typic Udipsamments
Histosols	Histosols
Ingalls	Sandy over loamy, mixed, active, frigid Typic Endoaquods
Iosco	Sandy over loamy, mixed, frigid Argic Endoaquods
Islandlake	Sandy, mixed, frigid Lamellic Haplorthods
Kalkaska	Sandy, mixed, frigid Typic Haplorthods
Karlin	Sandy, mixed, frigid Entic Haplorthods
Kinross	Sandy, mixed, frigid Typic Endoaquods
Liminga	Sandy, mixed, frigid Typic Haplorthods
Longrie	Coarse-loamy, mixed, superactive, frigid Typic Haplorthods
Loxley	Dysic, frigid Typic Haplosaprists
Lupton	Euic, frigid Typic Haplosaprists
Mancelona	Sandy, mixed, frigid Alfic Haplorthods
Manistique	Mixed, frigid Spodic Psammaquents
Markey	Sandy or sandy-skeletal, mixed, euic Terric Haplosaprists
McMillan	Sandy, mixed, frigid Lamellic Haplorthods
Meehan	Mixed, frigid Aquic Udipsamments
Menominee	Sandy over loamy, mixed, active, frigid Alfic Haplorthods
Minocqua	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, nonacid, frigid Typic Endoaquepts
Munising	Coarse-loamy, mixed, active, frigid Alfic Oxyaquic Fragiorthods
Neconish	Sandy, isotic, frigid Oxyaquic Haplorthods

Table 21.--Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Noseum	Sandy, isotic, frigid Oxyaquic Haplorthods
Paquin	Sandy, mixed, frigid, shallow, ortstein Typic Durorthods
Pelkie	Mixed, frigid Oxyaquic Udipsamments
Pickford	Fine, mixed, active, nonacid, frigid Aeric Epiaquepts
Proper	Sandy, mixed, frigid, ortstein Oxyaquic Haplorthods
Rousseau	Sandy, mixed, frigid Entic Haplorthods
Rubicon	Sandy, mixed, frigid Entic Haplorthods
Ruse	Loamy, mixed, active, frigid Lithic Endoaquolls
Seney	Mixed, frigid Typic Psammaquents
Shingleton	Sandy, mixed, frigid Lithic Haplorthods
Shuberts	Mixed, frigid Typic Psammaquents
Spot	Sandy, mixed, frigid, shallow, ortstein Typic Duraquods
Springlake	Sandy, mixed, frigid Typic Haplorthods
Stutts	Sandy, isotic, frigid Typic Haplorthods
Sultz	Sandy, mixed, frigid Entic Haplorthods
Tawas	Sandy or sandy-skeletal, mixed, euic, frigid Terric Haplosaprists
Trenary	Coarse-loamy, mixed, semiactive, frigid Alfic Haplorthods
Udipsamments	Udipsamments
Udorthents	Udorthents
Vilas	Sandy, mixed, frigid Entic Haplorthods
Wainola	Sandy, mixed, frigid Typic Endoaquods
Wallace	Sandy, mixed, frigid, shallow, ortstein Typic Durorthods
Wormet	Sandy, mixed, frigid Typic Endoaquods
Wurtsmith	Mixed, frigid Oxyaquic Udipsamments
Yalmer	Sandy, mixed, frigid Alfic Oxyaquic Fragiorthods

Interpretive Groups

Interpretive Groups

(Absence of an entry indicates that an interpretive group is not assigned. See text for descriptions of the groups)

Map symbol and soil name	Land capability	Michigan soil management group	Important farmland category*	Hydric status	Habitat type	
					Primary	Secondary
10B			0			
Amadon	3s	Ra		Not hydric	ATD	---
Rock outcrop.						
11B	3s	4a	0	Not hydric	ATD	---
Kalkaska						
12B	6s	5.3a	0	Not hydric	AQV	QAE
Rubicon						
12D, 12E	7s	5.3a	0	Not hydric	AQV	QAE
Rubicon						
12F	7s	5.3a	0	Not hydric	AQV	---
Rubicon						
13B	4s	5a	0	Not hydric	ATD-D	---
Kalkaska						
13D	6s	5a	0	Not hydric	ATD-D	---
Kalkaska						
13E	7s	5a	0	Not hydric	ATD-D	---
Kalkaska						
13F	7s	5a	0	Not hydric	ATD	---
Kalkaska						
16A	6s	5a-h	0	Not hydric	ATD-D	TMC
Paquin						
17A	4w	5b	0	Not hydric	TMC-V	---
Au Gres						
18	6w	5c-a	0	Hydric	TTS	---
Kinross						
19A	4w		0			
Au Gres		5b		Not hydric	TMC-V	---
Deford		4c		Hydric	FMC	---
20E	6e		0			
Rousseau		5a		Not hydric	AQV	---
Neconish		5.3a		Not hydric	AQV	---
Finch		5b-h		Not hydric	TMC-V	---
21B	4s	5.3a	0	Not hydric	ATD-D	---
Garlic						
21D	6s	5.3a	0	Not hydric	ATD-D	---
Garlic						
21E	7s	5.3a	0	Not hydric	ATD-D	---
Garlic						

See footnote at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability	Michigan soil management group	Important farmland category*	Hydric status	Habitat type	
					Primary	Secondary
22E	6e		0			
Rousseau		5a		Not hydric	AQV	---
Neconish		5.3a		Not hydric	AQV	---
Deford		4c		Hydric	FMC	---
24B Rousseau	3s	5a	0	Not hydric	AQV	---
24D Rousseau	4e	5a	0	Not hydric	AQV	---
24E Rousseau	6e	5a	0	Not hydric	AQV	---
25B Proper	6s	5a-h	0	Not hydric	PVC	---
26A	5w		0			
Spot		5c-h		Hydric	TTS	---
Finch		5b-h		Not hydric	TMC-V	---
27A	5w		0			
Hendrie		2.5c		Hydric	TTM	---
Annanias		3a-s		Not hydric	TMC	---
30 Hendrie	5w	2.5c	0	Hydric	TTM	---
33. Pits, sand and gravel						
34B Liminga	3s	5a	0	Not hydric	ATD	---
34E Liminga	6e	5a	0	Not hydric	ATD	---
36	6w		0			
Carbondale		Mc		Hydric	TTM	TTS
Lupton		Mc		Hydric	TTM	TTS
Tawas		M/4c		Hydric	TTM	---
37	7w		0			
Dawson		M/4c-a		Hydric	PCS	---
Greenwood		Mc-a		Hydric	PCS	---
Loxley		Mc-a		Hydric	PCS	---
43 Ensley	5w	3c	2	Hydric	FI	TTM
56B	5w		0			
Shuberts		4/Rbc		Hydric	---	---
Wurtsmith		5.7a		Not hydric	AQV	---
Meehan		5a		Not hydric	TMC-V	---
61A	3w		0			
Ingalls		4/2b		Not hydric	TMC-D	---
Caffey		4/2c		Hydric	TTM	---

See footnote at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability	Michigan soil management group	Important farmland category*	Hydric status	Habitat type	
					Primary	Secondary
62B	3s		1			
McMillan		4a		Not hydric	AVO	ATD
Greylock		3a		Not hydric	AVO	---
62D	4e		0			
McMillan		4a		Not hydric	ATD	---
Greylock		3a		Not hydric	AVO	---
62E	7e		0			
Greylock		3a		Not hydric	AVO	---
McMillan		4a		Not hydric	ATD	---
63 Deford	5w	4c	0	Hydric	FCM	TMC
65	7w		0			
Ausable, frequently flooded		L-4c		Hydric	FMC	---
Deford, frequently flooded		L-4c		Hydric	FMC	---
Tawas, frequently flooded		M/4c		Hydric	TTM	---
66 Markey	6w	M/4c	0	Hydric	---	---
67B	4s		0			
Pelkie, occasionally flooded		L-4a		Not hydric	ATD	---
Deford, frequently flooded		L-4c		Hydric	FMC	---
68F Deer Park	7s	5.3a	0	Not hydric	PVC	QAE
69 Ruse	7w	Rbc	0	Hydric	TTM	---
70F	7s		0			
Deer Park		5.3a		Not hydric	PVC	QAE
Deford		5c		Hydric	FMC	---
Tawas		M/4c		Hydric	TTM	---
72 Spot	5w	5c-h	0	Hydric	TTS	---
73B	2e		3			
Graveraet		3a-f		Not hydric	AVO	---
Gulliver		3a		Not hydric	AVO	---
76A	5w		0			
Shuberts		4/Rbc		Hydric	---	---
Manistique		4/Rbc		Not hydric	---	---
78B Heinz	4s	3/5a	0	Not hydric	ATD-D	---

See footnote at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability	Michigan soil management group	Important farmland category*	Hydric status	Habitat type	
					Primary	Secondary
80F	7s		0			
Deer Park		5.3a		Not hydric	AQV	---
Dawson		M/4c-a		Hydric	PCS	---
Wainola		5b		Not hydric	TMC	---
84	7w		0			
Dawson		M/4c-a		Hydric	PCS	---
Kinross		5c-a		Hydric	TTS	---
86B	4s		0			
Wurtsmith		5.7a		Not hydric	AQV	---
Tawas		M/4c		Hydric	TTM	---
Deford		4c		Hydric	FMC	---
87B	2e		0			
Longrie		3/Ra		Not hydric	AVO	---
Amadon		Ra		Not hydric	ATD	---
87D	4e		0			
Amadon		Ra		Not hydric	ATD	---
Longrie		3/Ra		Not hydric	AVO	---
87E			0			
Amadon	7e	Ra		Not hydric	ATD	---
Longrie	7e	3/Ra		Not hydric	AVO	---
Rock outcrop.						
88B	2e		3			
Cookson		3/Ra		Not hydric	AVO	---
Amadon		Ra		Not hydric	AVO	---
89B	2e		1			
Cookson		3/Ra		Not hydric	AVO	---
Trenary		3a		Not hydric	AOC	---
90	6w	M/Rc	0	Hydric	TTM	---
Chippeny						
91	6w		0			
Cathro		M/3c		Hydric	TTM	---
Lupton		Mc		Hydric	TTM	---
93A	7w		0			
Ruse		Rbc		Hydric	TTM	---
Ensign		Rbc		Not hydric	TM	---
98B	4s	Ga	0	Not hydric	AVO	---
Guardlake						
98D, 98E	6s	Ga	0	Not hydric	AVO	---
Guardlake						
116F	---		0			
Udipsamments		---		Not hydric	---	---
Udorthents		---		Not hydric	---	---
119.						
Landfill						

See footnote at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability	Michigan soil management group	Important farmland category*	Hydric status	Habitat type	
					Primary	Secondary
120A	3w		2			
Charlevoix		3b		Not hydric	TMC	TMC-D
Ensley		3c		Hydric	FI	TTM
122A	3w	3/5b	0	Not hydric	TMC-D	---
Wormet						
123	5w	2.5c	0	Hydric	FMC	---
Minocqua						
125B, 125D, 125E	4e		0			
Stutts		4a		Not hydric	ATD	---
Kalkaska		4a		Not hydric	ATD	---
131B	4s		0			
Furlong		4/Ra		Not hydric	AVO	---
Shingleton		Ra		Not hydric	AVO	---
141A	4s	5a	0	Not hydric	ATD-D	TMC-D
Halfaday						
145B	3e	5a	0	Not hydric	ATD	---
Noseum						
155B	3s	4a	0	Not hydric	TMV	---
Karlin						
160B	6s		0			
Paquin		5a-h		Not hydric	ATD-D	---
Finch		5b-h		Not hydric	TMC-V	---
218.						
Pits, quarry						
219B	4s	5.3a	0	Not hydric	AQV	---
Cublake						
222	8w		0			
Histosols		---		Hydric	---	---
Aquents		---		Hydric	---	---
225B	4s	5a	0	Not hydric	ATD-D	---
Cusino						
248B	3s		0			
Escanaba		4/2a		Not hydric	AVO	ATD
Greylock		3a		Not hydric	AVO	ATD
249A	3w	4/2b	0	Not hydric	TMC-D	---
Iosco						
267A	4w	5b-h	0	Not hydric	TMC-V	---
Finch						
287B	3s	5.7a	0	Not hydric	ATD	---
Hiawatha						
289B, 289D	6s	5a-h	0	Not hydric	ATD	---
Wallace						

See footnote at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability	Michigan soil management group	Important farmland category*	Hydric status	Habitat type	
					Primary	Secondary
289E---------- Wallace	7s	5a-h	0	Not hydric	ATD	---
294B----------	2e		0			
Munising, calcareous substratum----------		3a-af		Not hydric	ATD	AVO
Yalmer, calcareous substratum----------		4a-a		Not hydric	ATD	AVO
Frohling, calcareous substratum----------		3a-f		Not hydric	ATD	AVO
295E----------	7s		0			
Dillingham----------		4a		Not hydric	ATD-D	---
Kalkaska----------		5a		Not hydric	ATD-D	---
355B---------- Springlake	4s	5a	0	Not hydric	ATD	---
366B---------- Gilchrist	4s	4a	0	Not hydric	ATD	---
367B---------- Cozy	3s	Ga-d	0	Not hydric	AVO	---
400B----------			0			
Amadon----------	3s	Ra		Not hydric	ATD	---
Rock outcrop.						
401A---------- Ingalls	3w	4/2b	2	Not hydric	TMC-D	---
490B----------	4s		0			
Pelkie, occasionally flooded----------		L-4a		Not hydric	ATD-D	---
Arnheim, frequently flooded----------		L-2c		Hydric	FMC	---
491B----------	4s		0			
Neconish----------		5.3a		Not hydric	AQV	---
Deford, rarely flooded--		L-4c		Hydric	FMC	---
Wainola----------		5b		Not hydric	TMC	---
492D----------	4s		0			
Wurtsmith----------		5.7a		Not hydric	AQV	---
Duck----------		5a		Not hydric	TMC-D	---
Rubicon----------		5.3a		Not hydric	AQV	---
493A----------	5w		0			
Deford----------		4c		Hydric	FMC	---
Meehan----------		5a		Not hydric	TMC-V	---
Seney----------		5a		Not hydric	TMC-V	---
498B----------	4s		0			
Bursaw----------		5a		Not hydric	---	---
Beavertail----------		3c		Hydric	---	---
505B---------- Graveraet	3s	3a-f	0	Not hydric	AVO	AVO-A

See footnote at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability	Michigan soil management group	Important farmland category*	Hydric status	Habitat type	
					Primary	Secondary
505D---------- Graveraet	3e	3a-f	3	Not hydric	AVO	---
512A---------- Growton	2w	3b	2	Not hydric	AVO-CI	---
514B---------- Kalkaska, burned	4s	5a	0	Not hydric	TMV	TM
514D---------- Kalkaska, burned	6s	5a	0	Not hydric	TMV	TM
514E---------- Kalkaska, burned	7e	5a	0	Not hydric	TMV	TM
515B---------- Vilas	4s	4a	0	Not hydric	AQV	---
516A----------	4s		0			
Deford, drained---------		4c		Not hydric	FMC	---
Meehan, drained---------		5a		Not hydric	TMC-V	---
517B, 517D---------- Mancelona	3s	4a	0	Not hydric	TMV	TM
518A----------	7w		0			
Deford, frequently flooded----------		L-4c		Hydric	FMC	---
Seney, frequently flooded----------		5a		Not hydric	TMC-V	---
519B---------- Trenary	2e	3a	1	Not hydric	AOC	---
520B----------	6s		0			
Rubicon----------		5.3a		Not hydric	AQV	---
Sultz----------		5a		Not hydric	AQV	---
520D----------	6s		0			
Rubicon----------		5.3a		Not hydric	AQV	---
Sultz----------		4/2a		Not hydric	AQV	---
525B----------	4s		0			
Neconish----------		5.3a		Not hydric	AQV	---
Kinross----------		5c-a		Hydric	TTS	---
Wainola----------		5b		Not hydric	TMC	---
526B----------	3s		0			
Graveraet----------		3a-f		Not hydric	AVO	AVO-A
Angelica----------		2.5c		Hydric	FE	---
527B----------	4s		0			
Islandlake----------		5a		Not hydric	ATD-D	---
McMillan----------		4a		Not hydric	ATD	---
527D----------	6s		0			
Islandlake----------		5a		Not hydric	ATD-D	---
McMillan----------		4a		Not hydric	ATD	---

See footnote at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability	Michigan soil management group	Important farmland category*	Hydric status	Habitat type	
					Primary	Secondary
527E	6e		0			
Islandlake		5a		Not hydric	ATD-D	---
McMillan		4a		Not hydric	ATD	---
531B	2e	3a	1	Not hydric	AVO	---
Greylock						
531D	3e	3a	0	Not hydric	AVO	---
Greylock						
532	5w	2.5c	0	Hydric	TTP	---
Angelica						
534	5w	1c	0	Hydric	TAM	---
Pickford						
535B	2e	3a	1	Not hydric	AVO	---
Trenary						
535D	4e	3a	0	Not hydric	AVO	---
Trenary						
536B	3s	4/2a	0	Not hydric	AVO	---
Menominee, sandy substratum						
537B	3s	4a	0	Not hydric	AVO	ATD
McMillan						
537D	4e	4a	0	Not hydric	AVO	ATD
McMillan						
538B	3s		0			
Menominee, sandy substratum		4/2a		Not hydric	AVO	---
McMillan		4a		Not hydric	ATD	---
540D	5w		0			
Deford		4c		Hydric	FMC	---
Rubicon		5.3a		Not hydric	AQV	---
Au Gres		5b		Not hydric	TMC-V	---
541D	6w		0			
Kinross		5c-a		Hydric	TTS	---
Au Gres		5b		Not hydric	TMC-V	---
Rubicon		5.3a		Not hydric	AQV	---
543B	3e	3a	0	Not hydric	TMC-D	---
Auger, sandy substratum						
546B, 546D	4s	5a	0	Not hydric	ATD-D	---
Kalkaska, deep water table						
547B	6s	5.3a	0	Not hydric	QAE	---
Rubicon, very deep water table						

See footnote at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability	Michigan soil management group	Important farmland category*	Hydric status	Habitat type	
					Primary	Secondary
547D---------- Rubicon, very deep water table	7s	5.3a	0	Not hydric	QAE	---
548B----------	3s		0			
McMillan----------		4a		Not hydric	AVO	ATD
Trenary----------		3a		Not hydric	AVO	---
549B---------- Islandlake	4s	5a	0	Not hydric	ATD-D	---
549D---------- Islandlake	6s	5a	0	Not hydric	ATD-D	---
549E---------- Islandlake	6e	5a	0	Not hydric	ATD	---
551B---------- Kalkaska, very deep water table	4s	5a	0	Not hydric	ATD-D	---
551D---------- Kalkaska, very deep water table	6s	5a	0	Not hydric	ATD-D	---
553----------	6w		0			
Carbondale----------		Mc		Hydric	TTM	TTS
Loxley----------		Mc-a		Hydric	PCS	---
554B----------	4s		0			
Duck----------		5a		Not hydric	TMC-D	---
Halfaday----------		5a		Not hydric	ATD	---
555D----------	3s		0			
Hiawatha----------		5.7a		Not hydric	ATD	---
Deer Park----------		5.3a		Not hydric	AQV	---
Rubicon----------		5.3a		Not hydric	AQV	---
557B---------- Kalkaska, very deep water table, burned	4s	5a	0	Not hydric	ATD-D	---
557D---------- Kalkaska, very deep water table, burned	6s	5a	0	Not hydric	ATD-D	---
558B---------- Islandlake, burned	4s	5a	0	Not hydric	ATD-D	---
558D---------- Islandlake, burned	6s	5a	0	Not hydric	ATD-D	---
559B---------- Kalkaska, deep water table, burned	4s	5a	0	Not hydric	ATD-D	---
560B---------- Islandlake, very deep water table	4s	5a	0	Not hydric	ATD-D	---

See footnote at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability	Michigan soil management group	Important farmland category*	Hydric status	Habitat type	
					Primary	Secondary
561A---------- Croswell	4s	5a	0	Not hydric	AQV	---
562B----------	4s		0			
Croswell----------		5a		Not hydric	AQV	---
Kinross----------		5c-a		Hydric	TTS	---
563B----------	4s		0			
Halfaday----------		5a		Not hydric	ATD-D	---
Kinross----------		5c-a		Hydric	TTS	---
564A---------- Ingalls	3w	4/2b	2	Not hydric	TMC-D	---
565B---------- Rubicon, deep water table	6s	5.3a	0	Not hydric	QAE	---
565D---------- Rubicon, deep water table	7s	5.3a	0	Not hydric	QAE	---
W. Water						

* The categories of important farmland are as follows:

0 Not designated as important farmland
1 Prime farmland
2 Prime farmland where drained
3 Farmland of local importance

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