United States
Department of
Agriculture

Soil
Conservation
Service

In cooperation with
the New Hampshire
Agricultural Experiment
Station

Soil Survey of Rockingham County, New Hampshire
Part 2

How To Use This Soil Survey

This soil survey is available in two parts. Part 1 includes the detailed soil maps and descriptions of the detailed soil map units. It is designed for use by those who want information about the soils in a specific area. Part 2 includes the general soil map, technical soil descriptions, and interpretive tables. It is designed for use by those who want specific technical information or general information about all of the soils in the county.

On the **general soil map**, which is the color map at the end of part 2, the survey area is 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** in part 2 of this survey for a general description of the soils in your area.

The **detailed soil maps** are at the end of part 1. These 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**, which precedes the soil maps. 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 **Index to Map Units** in part 1 of this survey, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Summary of Tables** shows which table in part 2 has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1985. Soil names and descriptions were approved in 1986. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1985. This survey was made cooperatively by the Soil Conservation Service and the New Hampshire Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Rockingham County Conservation District. Local units of government provided financial assistance for the survey. Also, the Rockingham County Conservation District contributed personnel funded through Rockingham County to help complete the survey.

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.

All programs and services of the Soil Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

Contents—Part 2

Summary of Tables

Soil Survey of Rockingham County, New Hampshire

By Russell J. Kelsea and James P. Gove, Soil Conservation Service

Fieldwork by Russell J. Kelsea, James P. Gove, and Geoffrey W. Coombs, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service, in cooperation with the New Hampshire Agricultural Experiment Station

General Nature of the County

This section provides general information about Rockingham County. It describes climate, physiography and drainage, and history and development.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Epping in the period 1963 to 1981. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 24 degrees F and the average daily minimum temperature is 13 degrees. The lowest temperature on record, which occurred at Epping on February 3, 1971, is -29 degrees. Winter storms moving northeastward along the coast frequently bring rain and thawing temperatures, which are followed by more snow and cold temperatures. In summer, the average temperature is 67 degrees and the average daily maximum temperature is 80 degrees. The highest recorded temperature, which occurred at Epping on August 2, 1975, is 100 degrees. Sea breezes frequently moderate the temperature in summer, particularly near the coast.

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

The total annual precipitation is about 43 inches. Of this, more than 20 inches, or about 45 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 18 inches. The heaviest 1-day rainfall during the period of record was 3.85 inches at Epping on April 2, 1973. Thunderstorms occur on about 20 days each year.

The average seasonal snowfall is about 69 inches. The greatest snow depth at any one time during the period of record was 46 inches. On the average, 42 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The sun shines 60 percent of the time possible in summer and 50 percent in winter. The prevailing wind is from the northwest. Average windspeed is highest, 8 miles per hour, in spring.

Physiography and Drainage

Rockingham County is part of the major land resource area known as the New England and Eastern New York Upland, Southern Part *(15)*. Elevation ranges from sea level to about 1,350 feet above sea level. The

county includes all of the coastline in New Hampshire and extends inland to the Merrimack River Valley.

The coastline of the Atlantic Ocean is generally rocky but has sandy beaches and some sand dunes. Directly inland from the coast are low hills, broad lowlands, and estuaries. Some of the hills are drumlins or grounding-line deltas *(9, 11)*, and the lowlands are generally marine or lacustrine plains. Tidal marshes are common in the estuaries and behind the coastal beaches. Small, low-gradient rivers, such as the Piscassic, Winnicut, and Taylor Rivers, drain most of this part of the county, but Great Bay, Hampton Harbor, and the Piscataqua and Squamscott Rivers are prominent bodies of tidal water. The average daily tidal range of these water bodies varies from place to place. It is 6.8 feet at the railroad bridge over the Squamscott River at the upper end of Great Bay and 8.3 feet at Hampton Harbor *(4)*.

Inland areas in the county are characterized by hills, low mountains, and broad valleys. Many of the hills are either drumlins or bedrock ridges. Low mountains, such as Saddleback and Pawtuckaway, generally have a thin mantle of soil material over bedrock, especially on the upper slopes. Glacial outwash consisting of sand and gravel is in some of the major stream valleys. The inland areas have many ponds and lakes, which are fed by numerous small streams. The Exeter and Lamprey Rivers drain most of these areas. They eventually empty into the Piscataqua River via Great Bay, the major estuary.

History and Development

The native inhabitants of Rockingham County consisted of Indians belonging to tribes known as the Piscataquakes, Squamscotts, and Winnicowets, which generally are recognized as part of the Penacooks *(10)*. Although the Indians depended primarily on hunting, fishing, and similar activities for food, they also planted some crops.

European settlement of the county began in the early 1600's. The first white settlers encountered a land that was dominantly forested with hemlock, red oak, and white pine, all of which are still important species in the county. The stands during the 1600's had more hemlock and less pine than the current stands. Wet soil conditions, wind, natural fires, and land clearing by the Indians resulted in openings throughout the forested areas. The early European settlers exploited the forest resource and created more openland. The openland generally was used as pasture. The land was unmanaged, and soil conservation or crop improvement practices were not used for many years.

By the mid 1800's, only about 50 percent of the county was forested *(10)*. During this period agricultural improvements became more important. Surface stones were removed from the fields, and stone walls were built. Soil conservation and crop improvement practices were applied. Establishment of the New Hampshire Department of Agriculture and the University of New Hampshire facilitated improvements in agriculture. A shift from farm life to town life began during the mid 1800's as manufacturing became a more important part of the local economy.

By 1952, about 74 percent of the county was forested, 17 percent was used for agricultural purposes, and 2 percent was used for urban development *(6)*. Agricultural land was being abandoned, and urban development was accelerating. By 1974, about 10 percent of the county was used for urban development and only 10 percent was used for agricultural purposes. The trend toward urban development is likely to continue in the future because of such factors as high technology and manufacturing.

General Soil Map Units

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

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

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

In some areas the soil names and proportion of soils identified on the general soil map of this survey area do not agree with those on the maps of adjacent survey areas. Differences result from variations in the scale of the maps, in the degree of generalization, and in the percentages of soils in the different survey areas. They also result from changes in series concepts.

Soil Descriptions

Very Deep, Organic Soils

1. Ipswich-Pawcatuck

Very poorly drained soils that are nearly level and are subject to tidal inundation

This map unit consists of soils in tidal marshes and on the adjoining dunes and beaches. It makes up about 1 percent of the county. It is about 70 percent Ipswich soils, 10 percent Pawcatuck soils, and 20 percent similar and dissimilar soils of minor extent.

Ipswich soils formed in organic material that is more than 51 inches thick. They are in the central part of the tidal marshes and along the streams that drain into the major tidal marshes.

Pawcatuck soils formed in organic material that is 16 to 51 inches deep over a sandy substratum. They are along the margin of the tidal marshes.

Of minor extent in this map unit are Udorthents and Urban land along the seaward side of the tidal marshes and Canton and Chatfield soils along the landward side and on islands in the tidal marshes.

Most of the acreage in this map unit is openland. The dominant vegetation is saltmeadow cordgrass and saltmarsh cordgrass. Roads and buildings have been constructed on some of the minor soils. Recreation is the major land use.

This map unit is poorly suited to cropland. It is not suitable for woodland. Trees do not grow on these soils. Only salt-tolerant plants can grow on the soils.

This map unit is poorly suited to urban development. The organic soils subside, become acid when drained, and are subject to tidal inundation.

Very Deep, Mineral Soils

2. Windsor-Hinckley-Canton

Excessively drained and well drained, sandy and loamy soils that are nearly level to steep

This map unit consists of soils on wide plains and broad, low, knobby hills. In most places the plains are adjacent to streams and rivers.

This map unit makes up about 10 percent of the county. It is about 18 percent Windsor soils, 16 percent Hinckley soils, 10 percent Canton soils, and 56 percent similar and dissimilar soils of minor extent (fig. 2).

Windsor soils have a surface layer of loamy sand and a substratum of sand. They are excessively drained and are on wide plains.

Hinckley soils have a surface layer of fine sandy loam and a substratum of very gravelly coarse sand. They are excessively drained and are on wide plains and knolls.

Canton soils have a surface layer of gravelly fine

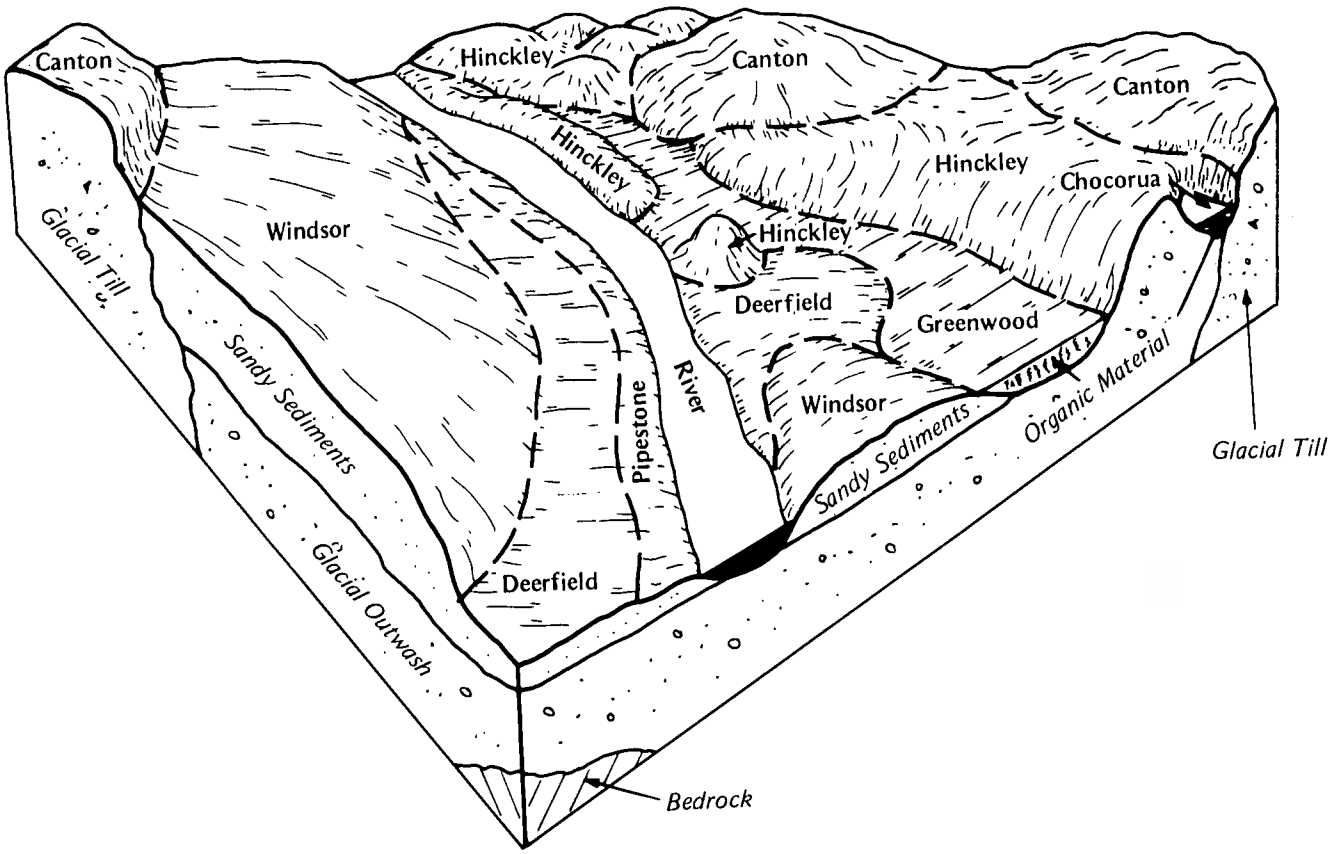

Figure 2.—Typical pattern of soils and parent material in the Windsor-Hinckley-Canton general soil map unit.

sandy loam and a substratum of loamy sand. They are well drained and are on hills.

The soils of minor extent include the moderately well drained Deerfield and somewhat poorly drained Pipestone soils in the lower areas on plains and in drainageways. Other minor soils are the very poorly drained Greenwood and Chocorua soils in basins.

Most areas of this map unit are used for industrial, commercial, or extensive residential development. Many areas are used as woodland.

This map unit is generally suited to pasture. The nearly level and gently sloping soils are suited to cropland. Droughtiness is a limitation in most areas.

This map unit is suited to woodland. Droughtiness is a limitation affecting productivity and seedling establishment. The only equipment limitation is the slope in the steeper areas. Typical species include eastern white pine, northern red oak, red pine, and white oak.

This map unit is well suited to most kinds of urban development. Rapid permeability is a limitation affecting the disposal of effluent. It can result in the pollution of ground water. The slope is a limitation in some areas.

3. Hoosic-Paxton-Eldridge

Somewhat excessively drained to moderately well drained, loamy soils that are nearly level to steep

This map unit consists of soils on smooth, oval hills surrounded by an irregular plain that has many broad drainageways. Most of the hills have a northwest orientation.

This map unit makes up about 5 percent of the county. It is about 23 percent Hoosic soils, 13 percent Paxton soils, 8 percent Eldridge soils, and 56 percent similar and dissimilar soils of minor extent (fig. 3).

Hoosic soils have a surface layer of gravelly fine sandy loam and a substratum of very gravelly coarse sand. They are somewhat excessively drained and are in the higher positions on the plain surrounding the hills.

Paxton soils have a surface layer of fine sandy loam and a substratum of dense fine sandy loam. They are

well drained and are on oval hills.

Eldridge soils have a surface layer of fine sandy loam and a substratum of silt loam. They are moderately well drained and are in the lower areas on the plain surrounding the hills.

The soils of minor extent include the moderately well drained and somewhat poorly drained Boxford soils, the moderately well drained Newfields and Scituate soils, and the poorly drained Scitico and Squamscott soils. All of these soils are in broad drainageways.

Most areas of this map unit are used as woodland or cropland. Some areas are used for residential or commercial development.

This map unit generally is suited to pasture. In areas where surface stones have been removed, the nearly level and gently sloping soils are suited to cropland. Commercial vegetables, tree fruits, corn for silage or grain, and hay are typical crops. The slope and the hazard of erosion are management concerns.

This map unit is suited to woodland. Generally, few limitations affect woodland management, but the slope restricts the use of equipment in some areas. Typical species are eastern white pine and northern red oak.

This map unit generally is suited to urban development in areas where the soils are nearly level or gently sloping. In some areas, however, seasonal wetness is a limitation.

4. Eldridge-Scitico

Moderately well drained and poorly drained, loamy soils that are nearly level and gently sloping

This map unit consists of soils on broad, dissected lowlands. It is drained by many intermittent streams and some small perennial rivers.

This map unit makes up about 6 percent of the county. It is about 18 percent Eldridge soils, 16 percent Scitico soils, and 66 percent similar and dissimilar soils of minor extent.

Eldridge soils have a surface layer of fine sandy loam and a substratum of silt loam. They are moderately well drained and are on low rises and in midslope positions.

Scitico soils have a surface layer of silt loam and a substratum of silty clay. They are poorly drained and are in the lower areas and along drainageways.

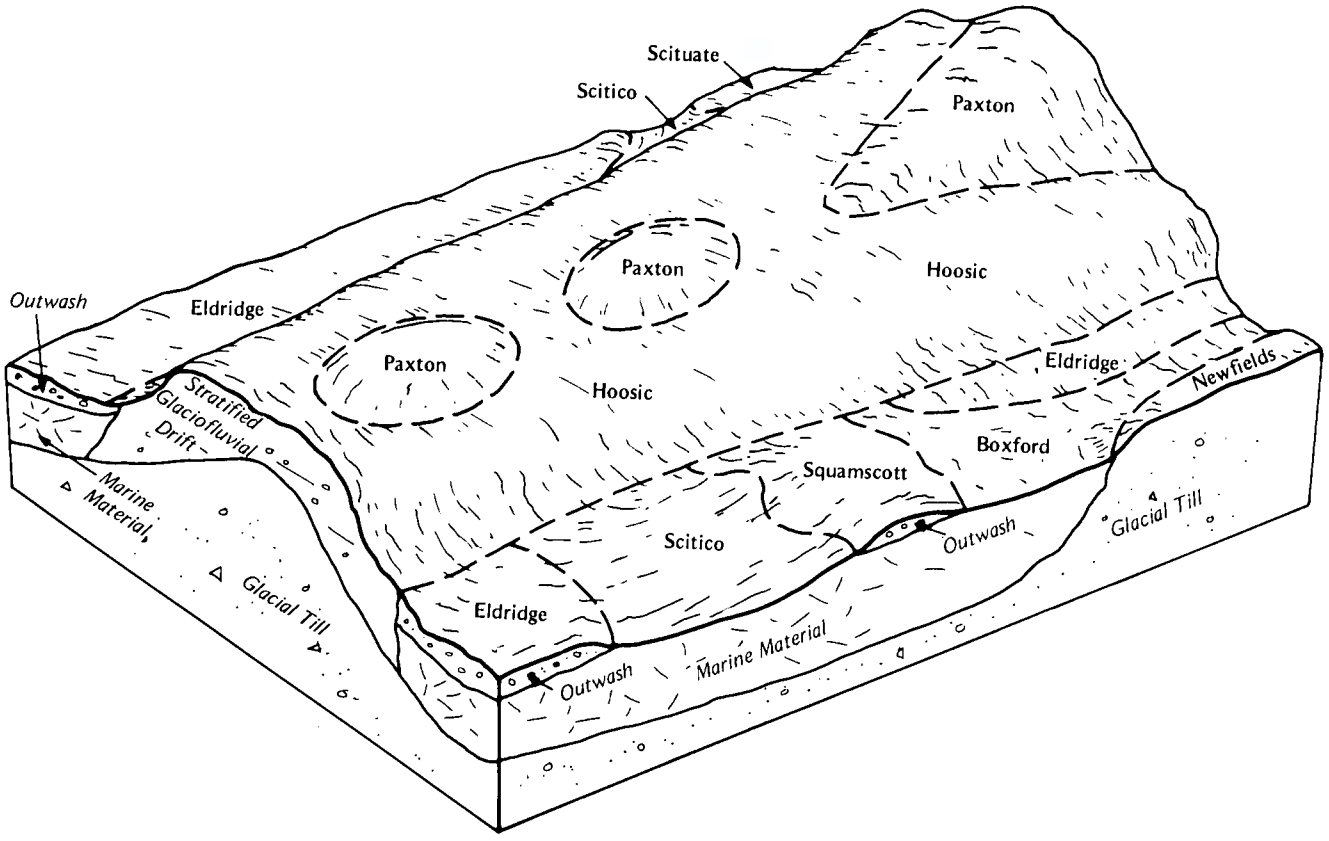

Figure 3.—Typical pattern of soils and parent material in the Hoosic-Paxton-Eldridge general soil map unit.

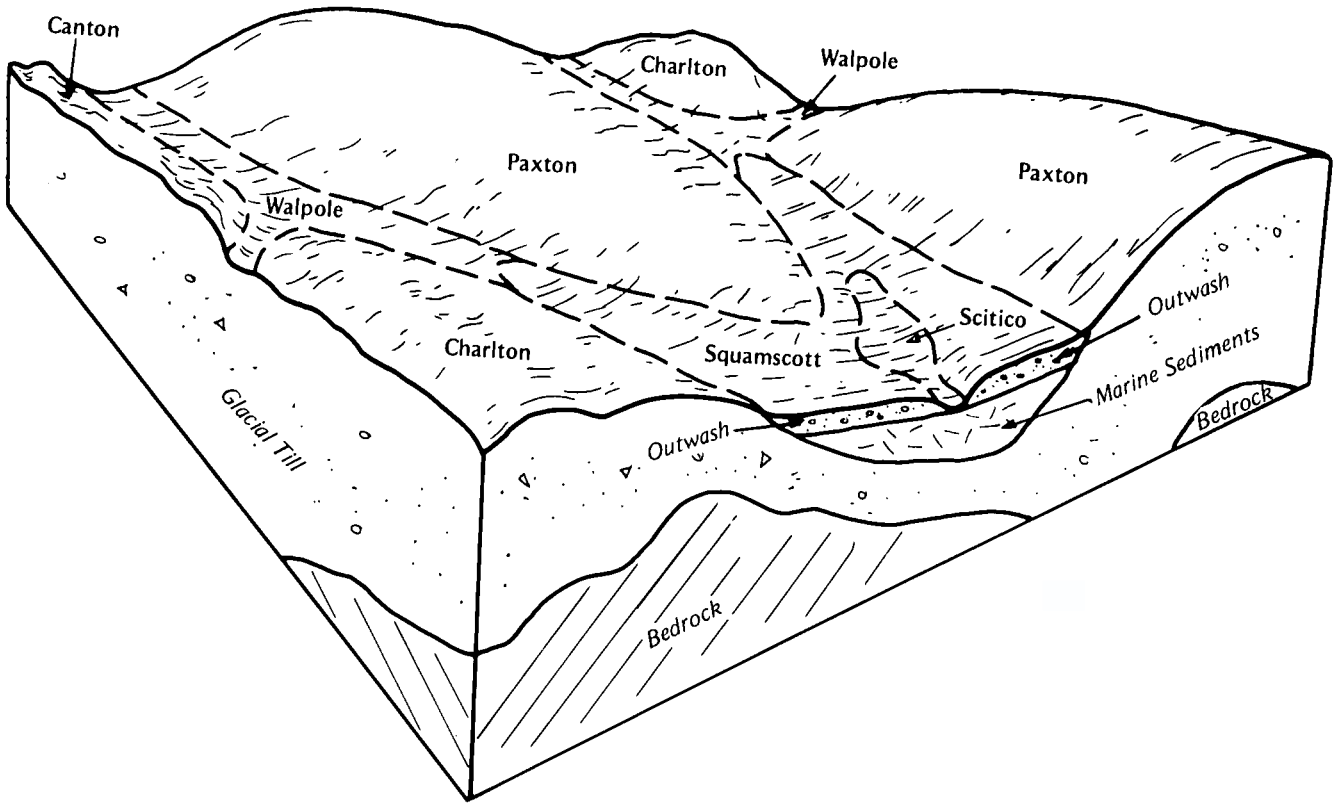

Figure 4.—Typical pattern of soils and parent material in the Paxton-Charlton-Squamscott general soil map unit.

The soils of minor extent include the poorly drained Squamscott soils along drainageways, the moderately well drained or somewhat poorly drained Boxford and moderately well drained Scio soils on low rises and midslopes, and the well drained Unadilla and excessively drained Windsor soils on the higher convex slopes.

Most areas of this map unit are used as woodland. Some areas are used for residential or commercial development.

This map unit is suited to cropland and pasture, but wetness and soil compaction are major management concerns in some areas. Erosion is a hazard in all areas.

This map unit is suited to woodland, but seasonal wetness limits the use of equipment in some areas. Erosion is a hazard in disturbed areas. Typical species are eastern white pine, red maple, and northern red oak.

This map unit is poorly suited to urban development. In most areas the soils are wet for part of the year and are slowly permeable in the substratum. Also, they have a high potential for frost action and are highly susceptible to erosion if the surface is disturbed.

5. Paxton-Charlton-Squamscott

Well drained and poorly drained, loamy soils that are nearly level to steep

This map unit consists of soils on smooth, oval hills, on broad, low hills, and along drainageways. Most of the oval hills have a northwest orientation.

This map unit makes up about 5 percent of the county. It is about 20 percent Paxton soils, 14 percent Charlton soils, 10 percent Squamscott soils, and 56 percent similar and dissimilar soils of minor extent (fig. 4).

Paxton soils have a surface layer of fine sandy loam and a substratum of dense fine sandy loam. They are well drained and are on oval hills.

Charlton soils have a surface layer of fine sandy loam and a substratum of gravelly fine sandy loam. They are well drained and are on broad, low hills.

Squamscott soils have a surface layer of fine sandy loam and a substratum of silt loam. They are poorly drained and are along drainageways.

The soils of minor extent include the poorly drained Walpole and Scitico soils along drainageways and the well drained Canton soils on broad, knobby hills.

Most areas of this map unit are used as woodland. Some areas are used as cropland or pasture.

This map unit generally is suited to pasture. In areas where surface stones have been removed, the nearly level and gently sloping soils are well suited to cropland. Hay, corn for silage, and commercial vegetables are typical crops. The slope and the hazard of erosion are management concerns.

This map unit is well suited to woodland. Generally, few limitations affect woodland management, but the slope restricts the use of equipment in some areas. Typical species are eastern white pine and northern red oak.

This map unit generally is suited to urban development in areas where the soils are nearly level or gently sloping, but wetness is a limitation in some areas. Erosion is a hazard on disturbed sites.

6. Paxton-Woodbridge

Well drained and moderately well drained, loamy soils that are nearly level to steep

This map unit consists of soils on smooth, oval hills, in wide areas between the hills, and along drainageways. In most areas the hills have a general northwest orientation.

This map unit makes up about 7 percent of the county. It is about 26 percent Paxton soils, 17 percent Woodbridge soils, and 57 percent similar and dissimilar soils of minor extent.

Paxton soils have a surface layer of fine sandy loam and a substratum of dense fine sandy loam. They are well drained and are on oval hills.

Woodbridge soils have a surface layer of fine sandy loam and a substratum of dense fine sandy loam. They are moderately well drained and are on the lower side slopes of the oval hills and in areas between the hills. They also are on the top of broad, low hills.

The soils of minor extent include the well drained Canton soils on knolls and the sides of hills, the moderately well drained Scituate soils in wide areas between the hills, and the well drained Chatfield soils on knolls and ridges.

Most areas of this map unit are used as woodland. Some areas are used for residential development.

This map unit generally is suited to pasture. In areas where surface stones have been removed, the nearly level and gently sloping soils are well suited to cropland. The slope and the hazard of erosion are the primary management concerns. Wetness during the early part of the growing season also is a concern.

This map unit is well suited to woodland. Generally, few limitations affect woodland management, but the slope and seasonal wetness restrict the use of equipment in some areas. Typical species include eastern white pine, northern red oak, and sugar maple.

This map unit generally is suited to urban development in areas where the soils are nearly level or gently sloping, but seasonal wetness and slow permeability are limitations in most areas. Erosion is a hazard on disturbed sites.

7. Canton-Montauk

Well drained, loamy soils that are gently sloping to steep

This map unit consists of soils on broad hills, in wide areas between the hills, and in many narrow drainageways. It makes up about 15 percent of the county. It is about 25 percent Canton soils, 11 percent Montauk soils, and 64 percent similar and dissimilar soils of minor extent.

Canton soils have a surface layer of gravelly fine sandy loam and a substratum of loamy sand. They are on hills.

Montauk soils have a surface layer of fine sandy loam and a substratum of dense fine sandy loam that has lenses of loamy sand. They are on hills.

The soils of minor extent include the well drained Chatfield soils on ridges, knolls, and hills; the moderately well drained Scituate and Newfields soils in areas between the hills; and the poorly drained Walpole soils in drainageways.

Most areas of this map unit are used as woodland. Some areas are used for residential development.

This map unit is suited to pasture. In areas where surface stones have been removed, the gently sloping soils are well suited to cropland. Commercial tree fruits and hay are typical crops. The slope and the hazard of erosion are management concerns.

This map unit is suited to woodland. Generally, few limitations affect woodland management, but the slope restricts the use of equipment in some areas. Typical species are eastern white pine and northern red oak.

This map unit is well suited to urban development. The slope is a limitation in some areas, and erosion is a hazard during earth-moving activities.

Very Deep to Shallow, Mineral Soils

8. Canton-Chatfield-Hollis

Well drained and somewhat excessively drained, very deep to shallow, loamy soils that are gently sloping to steep

This map unit consists of soils on mountains, hills, and ridges that have many basins and narrow drainageways. In most areas the hills and ridges have a general northeast orientation.

This map unit makes up about 38 percent of the

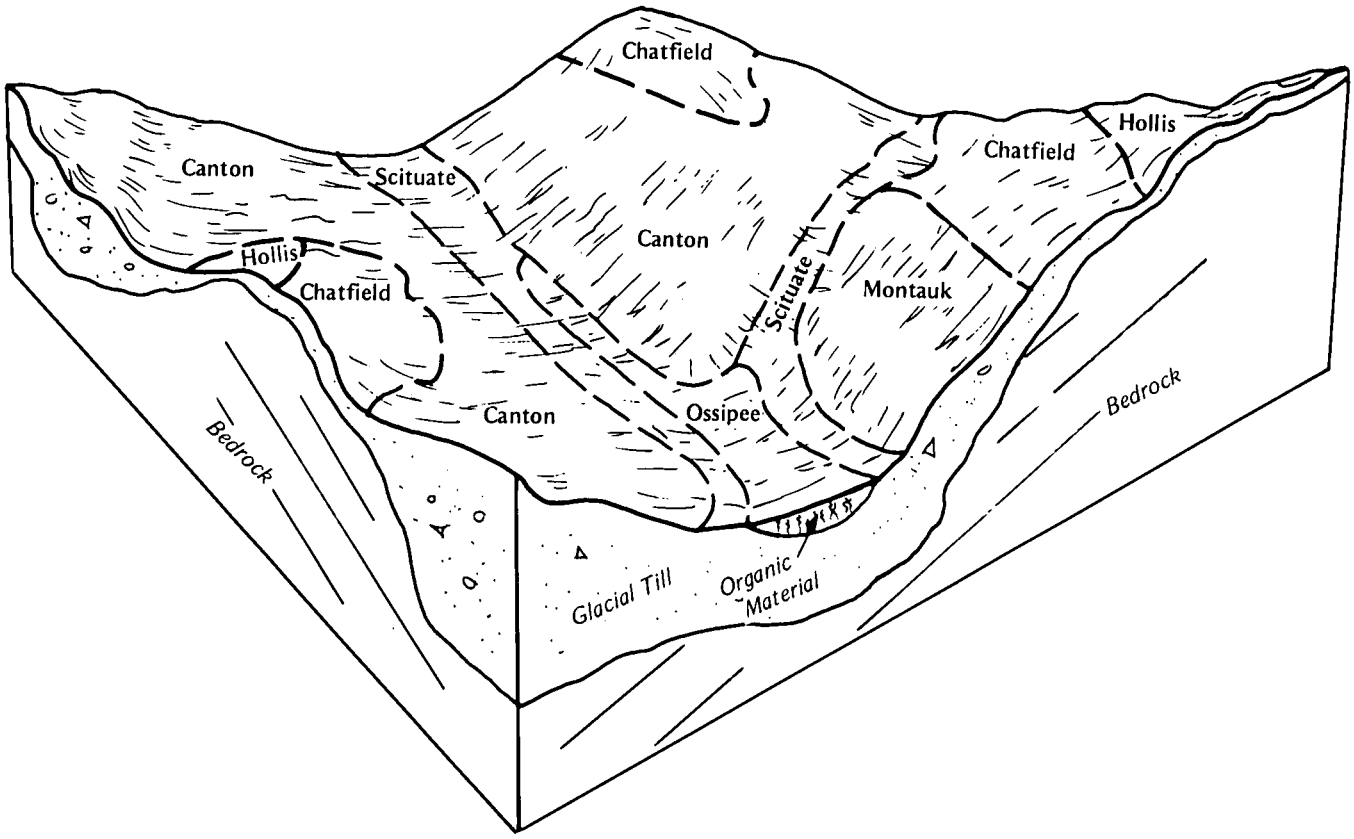

Figure 5.—Typical pattern of soils and parent material in the Canton-Chatfield-Hollis general soil map unit.

county. It is about 20 percent Canton soils, 15 percent Chatfield soils, 10 percent Hollis soils, and 55 percent similar and dissimilar soils of minor extent (fig. 5).

Canton soils have a surface layer of gravelly fine sandy loam and a substratum of loamy sand. They are well drained and very deep and are on mountains and hills.

Chatfield soils have a surface layer of fine sandy loam and a substratum of cobbly fine sandy loam. They are underlain by bedrock at a depth of 20 to 40 inches. They are well drained and are on mountains, hills, and ridges.

Hollis soils have a surface layer of fine sandy loam and a subsoil of cobbly fine sandy loam. They are underlain by bedrock at a depth of 10 to 20 inches. They are well drained and somewhat excessively drained and are on mountains, hills, and ridges.

The soils of minor extent include the very poorly drained Ossipee soils in basins, the well drained Montauk soils on hills, and the moderately well drained Scituate and Newfields soils on the lower mountainsides and in areas between hills.

Most areas of this map unit are used as woodland. Some areas are used for residential or commercial development.

This map unit is suited to pasture, but the slope and surface stones are management concerns. In areas where the surface stones have been removed, the gently sloping soils are suited to cropland. Commercial tree fruits and hay are typical crops.

This map unit is suited to woodland, but the use of equipment is limited on the moderately steep or steep slopes. In some areas trees can be blown over if the stand is thinned. Typical species are eastern white pine, northern red oak, and white oak.

This map unit is suited to urban development, but the slope and the depth to bedrock are limitations. Erosion is a hazard during earth-moving activities.

9. Hoosic-Canton-Chatfield

Somewhat excessively drained and well drained, very deep and moderately deep, loamy soils that are nearly level to steep

This map unit consists of soils on broad, low hills, on ridges, and on small knolls. In some areas the ridges

have a northeast orientation. The unit is drained by many small streams.

This map unit makes up about 8 percent of the county. It is about 13 percent Hoosic soils, 12 percent Canton soils, 10 percent Chatfield soils, and 65 percent similar and dissimilar soils of minor extent.

Hoosic soils have a surface layer of gravelly fine sandy loam and a substratum of very gravelly coarse sand. They are very deep and somewhat excessively drained and are on hills.

Canton soils have a surface layer of gravelly fine sandy loam and a substratum of loamy sand. They are very deep and well drained and are on hills and knolls.

Chatfield soils have a surface layer of fine sandy loam and a substratum of cobbly fine sandy loam. They are underlain by bedrock at a depth of 20 to 40 inches. They are well drained and are on hills, ridges, and knolls.

The soils of minor extent include the very poorly drained Ossipee, poorly drained Squamscott and Scitico, and somewhat poorly drained Pipestone soils in the lower areas and along drainageways. Also of minor extent are Udorthents and Urban land.

Most areas of this map unit are used as woodland. Some areas are used for residential, commercial, or industrial development.

This map unit generally is suited to pasture. In areas where surface stones have been removed, the nearly level and gently sloping soils are suited to cropland. Droughtiness is a limitation, but it is usually a major concern only during growing seasons of below average rainfall.

This map unit is suited to woodland. Generally, few limitations affect woodland management, but the slope restricts the use of equipment in some areas. Typical species are eastern white pine and northern red oak.

This map unit generally is suited to urban development in areas where the soils are nearly level or gently sloping, but in some areas the depth to bedrock is a limitation. In areas where the soils are strongly sloping to steep, the slope is a limitation.

10. Chatfield-Hollis-Canton

Somewhat excessively drained and well drained, shallow to very deep, loamy soils that are gently sloping to steep

This map unit consists of soils on broad, low, knobby hills and on ridges. In some areas the ridges have a northeast orientation.

This map unit makes up about 5 percent of the county. It is about 20 percent Chatfield soils, 10 percent Hollis soils, 10 percent Canton soils, and 60 percent similar and dissimilar soils of minor extent.

Chatfield soils have a surface layer of fine sandy loam and a substratum of cobbly fine sandy loam. They are underlain by bedrock at a depth of 20 to 40 inches. They are well drained and are on hills, ridges, and knolls.

Hollis soils have a surface layer of fine sandy loam and a subsoil of cobbly fine sandy loam. They are underlain by bedrock at a depth of 10 to 20 inches. They are well drained and somewhat excessively drained and are on hills and ridges.

Canton soils have a surface layer of gravelly fine sandy loam and a substratum of loamy sand. They are very deep and well drained and are on hills and knolls.

The soils of minor extent include the well drained Charlton soils on low hills, the very poorly drained Greenwood soils in basins, and the poorly drained Scitico and Squamscott soils along drainageways.

Most areas of this map unit are used as woodland. Some areas are used for residential development.

This map unit is suited to pasture, but it is poorly suited to cropland. The slope, the depth to bedrock, the hazard of erosion, and droughtiness are management concerns.

This map unit is suited to woodland. In most areas few limitations affect woodland management. In some areas, however, trees can be blown over because of a shallow rooting depth. Also, the slope restricts the use of equipment in some areas. Typical species are northern red oak and white oak.

This map unit is poorly suited to urban development. The depth to bedrock and the slope are the major limitations.

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 woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Table 4 gives the acreage and proportionate extent of the detailed soil map units in this survey area. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, 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 Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland or for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

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, IIe. 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 I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation.

The capability classification of each map unit is given in the yields table.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to food, feed, forage, fiber, and oilseed crops. It may be cultivated land, pasture, woodland, or other land, but it is not urban or built-up land or water areas. It either is used for food or fiber crops or is available for those crops. The soil qualities, growing season, and moisture supply are those needed for a well managed soil to produce a sustained high yield of crops in an economic manner. Prime farmland produces the highest yields with minimal expenditure of energy and economic resources, and farming it results in the least damage to the environment.

Prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The level of acidity or alkalinity is acceptable. Prime farmland has few or no rocks and is permeable to water and air. It is not excessively erodible or saturated with

water for long periods and is not frequently flooded during the growing season. The 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 Soil Conservation Service.

About 36,000 acres in the survey area, or more than 8 percent of the total acreage, meets the soil requirements for prime farmland. This land is mainly in the coastal areas of the county.

The map units in the survey area that are considered prime farmland are identified in the detailed map unit descriptions and listed in table 6. This list does not constitute a recommendation for a particular land use. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Woodland Management and Productivity

Phil Auger, county extension forester, helped prepare this section.

The vast majority of the woodland in Rockingham County consists of small, privately owned tracts. The annual harvest of sawlogs averages approximately 25 million board feet per year. The wood industry includes 16 sawmills and approximately 60 wood-harvesting firms and individuals.

The county has two major forest types—white pine red pine and oak/hickory. White pine and red oak are the most common species. The stands include pure white pine or a mixture of pine and hardwoods on upland sites and pure red maple or red maple, hemlock, and elm on wet sites. White pine, eastern hemlock, red oak, and red maple account for 82 percent of the cubic foot volume of growing stock on the woodland in the county.

The woodland in the county can be improved. Improvement cuttings can help to establish quality white pine and mixed hardwood forests in most areas. A lack of markets for low-quality white pine, small lot sizes, and a low level of professional forestry supervision are problems. Recent urban development throughout much of the county has aggravated these problems. County foresters of the Cooperative Extension Service can help to develop and implement forest management plans.

Table 7 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for an indicator tree species. The number indicates the volume, in cubic meters per hectare per year, which the indicator species can produce. The number 1 indicates low potential productivity; 2 and 3, moderate; 4 and 5, moderately high; 6 to 8, high; 9 to 11, very high; and 12 to 39, extremely high. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *R* indicates steep slopes; *X*, stoniness or rockiness; *W*, excess water in or on the soil; *T*, toxic substances in the soil; *D*, restricted rooting depth; *C*, clay in the upper part of the soil; *S*, sandy texture; and *F*, a high content of rock fragments in the soil. The letter *A* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, and F.

In table 7, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Erosion hazard is the probability that damage will occur as a result of site preparation and cutting where the soil is exposed along roads, skid trails, and fire lanes and in log-handling areas. Forests that have been burned or overgrazed are also subject to erosion. Ratings of the erosion hazard are based on the percent of the slope and on the erosion factor K shown in table 15. A rating of *slight* indicates that no particular prevention measures are needed under ordinary conditions. A rating of *moderate* indicates that erosion-control measures are needed in certain silvicultural activities. A rating of *severe* indicates that special precautions are needed to control erosion in most silvicultural activities. The proper construction and maintenance of roads, trails, landings, and fire lanes can reduce the erosion hazard.

Equipment limitation reflects the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. The chief characteristics and conditions considered in the ratings are slope, stones on the surface (fig. 6), rock outcrops, soil wetness, and texture of the surface layer. A rating of *slight* indicates that under normal conditions the kind of equipment and season of use are not significantly restricted by soil factors. Soil wetness can restrict equipment use, but the wet period does not exceed 1 month. A rating of *moderate* indicates that equipment use is moderately restricted because of one or more soil factors. If the soil is wet, the wetness restricts equipment use for a period of 1 to 3 months. A rating of *severe* indicates that equipment use is severely restricted either as to the kind of equipment that can be used or the season of use. If the soil is wet, the wetness restricts equipment

Figure 6.—A woodland access road in an area of Canton gravelly fine sandy loam, 3 to 8 percent slopes, very stony. The surface stoniness is a slight limitation affecting the use of equipment.

use for more than 3 months. Choosing the best suited equipment and deferring the use of harvesting equipment during wet periods help to overcome the equipment limitation.

Seedling mortality refers to the death of naturally occurring or planted tree seedlings, as influenced by the kinds of soil, soil wetness, or topographic conditions. The factors used in rating the soils for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, effective rooting depth, and slope aspect. A rating of *slight* indicates that seedling mortality is not likely to be a problem under normal conditions. Expected mortality is less than 25 percent. A rating of *moderate* indicates that some problems from seedling mortality can be expected. Extra precautions are advisable. Expected mortality is 25 to 50 percent. A rating of *severe* indicates that seedling mortality is a serious problem. Extra precautions are important. Replanting may be necessary. Expected mortality is more than 50 percent. Selection of special planting stock and special site preparation, such as bedding, furrowing, and a surface drainage system, can reduce the seedling mortality rate.

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. The use of special equipment that does not damage surficial root systems during partial cutting operations can reduce the hazard of windthrow. Care in thinning or not thinning at all also can reduce the hazard.

Plant competition ratings indicate the degree to which undesirable species are expected to invade and grow when openings are made in the tree canopy. The main factors that affect plant competition are depth to the water table and the available water capacity. A rating of *slight* indicates that competition from undesirable plants is not likely to prevent natural regeneration or suppress the more desirable species. Planted seedlings can become established without undue competition. A rating of *moderate* indicates that competition may delay the establishment of desirable species. Competition may hamper stand development, but it will not prevent the eventual development of fully stocked stands. A rating of *severe* indicates that competition can be expected to prevent regeneration unless precautionary measures are applied. Adequate site preparation before the new crop is planted can help to control plant competition.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index.* This 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.

Trees to plant are those that are suitable for commercial wood production.

Recreation

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreation. The ratings 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 (fig. 7), 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 are also important. Soils 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.

In table 8, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 8 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

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 best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

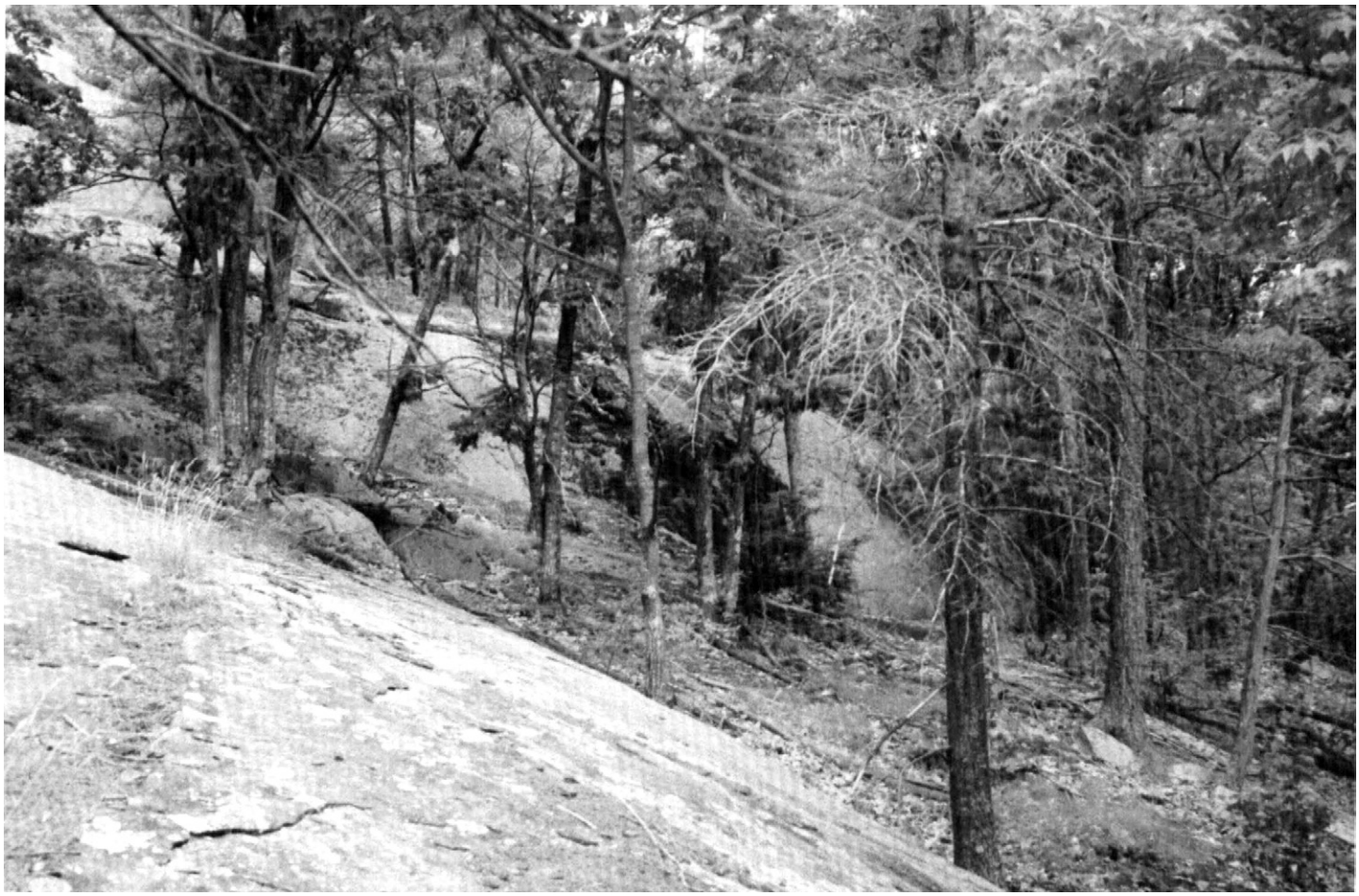

Figure 7.—A scenic area of Hollis-Rock outcrop-Chatfield complex, 15 to 60 percent slopes, in Pawtuckaway State Park. This area is used for hiking and sightseeing.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, 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 are also 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 are also considerations. Examples of grasses and legumes are fescue, timothy, 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 are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggartick, quackgrass, and ragweed.

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, birch, cherry, maple, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are gray dogwood, honeysuckle, 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, cedar, and hemlock.

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, arrowhead, pickerelweed, 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, swamps, 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 meadow vole, bobolink, field sparrow, cottontail, red fox, wild turkey, and woodcock.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include ruffed grouse, thrushes, woodpeckers, squirrels, raccoon, and deer.

Habitat for wetland wildlife consists of open, tidal, marshy, or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, frogs, tree swallow, 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 within a depth of 5 or 6 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 grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, 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 kind 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

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

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 stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil),

shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 11 shows the degree and kind of soil limitations that affect septic tank absorption fields and sewage lagoons. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 11 also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

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 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

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. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 11 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive 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.

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.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

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 final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants.

Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 12, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to 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 to 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, or sulfur. Availability of drainage outlets is not considered in the ratings.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of soil blowing or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of soil blowing, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

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 grain-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 shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

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 as much as about 15 percent, 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 *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-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 grain-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.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and

in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 15 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at ⅓-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 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 refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water 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 major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. 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.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major 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.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as a percentage of the saturation extract. Estimates in this survey are based on field and laboratory measurements at representative sites in areas of soils in tidal marshes. The salinity of these soils is affected the tidal water and by the frequency of inundation by fresh water. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent;

moderate, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

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) 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 (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

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.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 15, 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 or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 16 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the infiltration of water when the soils 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 permanent 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.

Flooding, the temporary inundation of an area, is 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, nor is water in swamps and marshes.

Table 16 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent 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); and *frequent* that it occurs often under normal weather conditions (the chance of flooding is more than 50 percent in any year). Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

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.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 16 are the depth to the seasonal high water table and the months of the year that the water table commonly is highest. A water table that is seasonally high for less than 1 month is not indicated in table 16.

Only saturated zones within a depth of about 6 feet

are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface. A study published in 1985 provides supporting data on the high water table in some of the soils in Rockingham County *(5)*.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Potential 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 mainly to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves 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 in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel 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 is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(14, 16)*. 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 17 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven 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 Inceptisol.

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 Aquept (*Aqu*, meaning water, plus *ept*, from Inceptisol).

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; 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 Haplaquepts (*Hapl*, meaning minimal horizonation, plus *aquept*, the suborder of the Inceptisols that has an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic 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 known kind of soil. 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 Haplaquepts.

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, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine, mixed, nonacid, mesic Typic Haplaquepts.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other 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" *(18)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(14)*. Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Boxford Series

The Boxford series consists of very deep, moderately well drained and somewhat poorly drained soils that formed in marine material. These soils are on marine

terraces. Slopes range from 0 to 15 percent.

Boxford soils are associated with Scio, Scitico, and Eldridge soils. They have more clay throughout than Scio soils. They do not have the dominantly gray matrix colors that are characteristic of Scitico soils. They have more clay and less sand in the solum than Eldridge soils.

Typical pedon of Boxford silt loam, 0 to 3 percent slopes, in the town of North Hampton, 60 feet at a bearing of 350 degrees from a town line marker that is located 3,400 feet west along the town line from U.S. Route 1:

Oe—2 inches to 0; partially decomposed forest litter.
A—0 to 2 inches; dark brown (7.5YR 3/2) silt loam; weak fine granular structure; friable; common fine and medium roots; very strongly acid; clear wavy boundary.
Bw1—2 to 6 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium granular structure; friable; common fine and medium roots; very strongly acid; clear wavy boundary.
Bw2—6 to 9 inches; light olive brown (2.5Y 5/4) silt loam; many medium faint light olive brown (2.5Y 5/6) and few medium distinct grayish brown (10YR 5/2) mottles; weak medium granular structure; friable; common fine and medium roots; very strongly acid; clear wavy boundary.
E—9 to 13 inches; olive (5Y 5/3) silt loam; common medium distinct light olive brown (2.5Y 5/4) and few fine faint olive gray (5Y 5/2) mottles; weak fine subangular blocky structure; friable; few fine roots; very strongly acid; clear wavy boundary.
BC—13 to 25 inches; olive (5Y 5/4) silty clay loam; common fine prominent yellowish red (5YR 4/8) and many medium distinct olive gray (5Y 5/2) mottles; moderate coarse angular blocky structure; firm; few fine roots; olive gray (5Y 5/2) films on faces of peds with dark reddish brown (5YR 2/2) stains; strongly acid; gradual wavy boundary.
C—23 to 60 inches; olive (5Y 5/4) silty clay; many fine distinct light olive brown (2.5Y 5/6) and common fine distinct olive gray (5Y 5/2) mottles; moderate coarse angular blocky structure parting to moderate fine subangular blocky; firm; gray (5Y 5/1) films on faces of peds with dark reddish brown (5YR 2/2) stains; moderately acid.

The thickness of the solum ranges from 20 to 50 inches. Reaction ranges from very strongly acid to slightly acid in the upper part of the solum and from strongly acid to neutral in the lower part and in the C horizon.

The A horizon has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 2 or 3. The Bw horizon has hue of 10YR to 5Y, value of 4 or 5, and chroma of 3 to 6. It is silt loam or silty clay loam. The C horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 3 or 4. It is silty clay loam or silty clay.

Canton Series

The Canton series consists of very deep, well drained soils that formed in glacial till. These soils are on glaciated uplands. Slopes range from 3 to 35 percent.

Canton soils are associated with Newfields, Charlton, Montauk, Chatfield, and Hoosic soils. They do not have the mottles that are characteristic of Newfields soils. They have more sand and less silt in the substratum than Charlton soils. They do not have the firm consistence or the loamy sand or fine sandy loam fabric in the substratum that is characteristic of Montauk soils. Unlike Chatfield soils, they do not have bedrock within 40 inches of the surface. They have more silt and less sand in the solum than Hoosic soils.

Typical pedon of Canton gravelly fine sandy loam, 8 to 15 percent slopes, very stony, in the town of Candia, 3,475 feet at a bearing of 200 degrees from the junction of New Hampshire Route 101 and Broad Road:

Oe—1 inch to 0; partially decomposed leaf litter.
Ap—0 to 5 inches; dark brown (10YR 4/3) gravelly fine sandy loam; weak fine granular structure; very friable; many fine, many medium, and few coarse roots; about 20 percent rock fragments; very strongly acid; abrupt smooth boundary.
Bw1—5 to 14 inches; yellowish brown (10YR 5/6) gravelly fine sandy loam; weak fine granular structure; very friable; many fine and many medium roots; about 20 percent rock fragments; very strongly acid; clear wavy boundary.
Bw2—14 to 21 inches; brownish yellow (10YR 6/6) gravelly fine sandy loam; weak fine granular structure; very friable; common fine and few medium roots; about 20 percent rock fragments; very strongly acid; gradual wavy boundary.
2C1—21 to 35 inches; light gray (2.5Y 7/2) loamy sand; massive; friable; few fine roots; about 10 percent or less lenses of firm, brittle fine sandy loam; about 10 percent rock fragments; strongly acid; clear wavy boundary.
2C2—35 to 60 inches; light gray (2.5Y 7/2) loamy sand; massive; friable; about 10 percent rock fragments; strongly acid.

The thickness of the solum ranges from 18 to 36 inches. The content of rock fragments ranges from 5 to 50 percent in individual subhorizons. Reaction ranges from extremely acid to moderately acid.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. The Bw horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 4 to 8. The 2C horizon has hue of 2.5Y or 5Y, value of 5 to 7, and chroma of 2 or 3. It has less than 20 percent lenses of firm, brittle fine sandy loam in any subhorizon.

Charlton Series

The Charlton series consists of very deep, well drained soils that formed in glacial till. These soils are on glacial till uplands. Slopes range from 3 to 25 percent.

Charlton soils are associated with Canton, Paxton, Hollis, Chatfield, and Pennichuck soils. They have more silt and less sand in the substratum than Canton soils. They do not have the firm or very firm consistence that is characteristic of the substratum in Paxton soils. Unlike Hollis, Chatfield, and Pennichuck soils, they are more than 40 inches deep over bedrock.

Typical pedon of Charlton fine sandy loam, 3 to 8 percent slopes, in the town of East Kingston, 2,700 feet west of New Hampshire Route 108 and 4,300 feet north of New Hampshire Route 107:

Oe—3 inches to 0; black (10YR 2/1), partially decomposed organic material; many fine and medium roots; abrupt smooth boundary.

Ap—0 to 4 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; friable; many fine and medium roots; about 5 percent rock fragments; very strongly acid; abrupt smooth boundary.

Bw1—4 to 11 inches; strong brown (7.5YR 5/6) gravelly fine sandy loam; weak medium granular structure; friable; common fine and medium roots; about 15 percent rock fragments; very strongly acid; abrupt wavy boundary.

Bw2—11 to 20 inches; yellowish brown (10YR 5/6) gravelly fine sandy loam; weak medium granular structure; very friable; common fine and medium roots; about 20 percent rock fragments; very strongly acid; gradual wavy boundary.

C—20 to 60 inches; yellowish brown (10YR 5/6) gravelly fine sandy loam; massive; friable; common fine and medium roots; about 20 percent rock fragments; very strongly acid.

The thickness of the solum ranges from 20 to 36 inches. The content of rock fragments ranges from 5 to 30 percent in the entire profile, but it is as much as 50 percent in individual subhorizons. Reaction ranges from very strongly acid to moderately acid.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. The Bw horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 6. The C horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 6. It is fine sandy loam, sandy loam, or the gravelly analogs of those textures.

Chatfield Series

The Chatfield series consists of moderately deep, well drained soils that formed in glacial till. These soils are on bedrock-controlled hills and ridges in the glacial till uplands. Slopes range from 3 to 60 percent.

Chatfield soils are associated with Hollis, Canton, Charlton, and Pennichuck soils. Unlike Hollis soils, they are more than 20 inches deep over bedrock. Unlike Canton and Charlton soils, they have bedrock within a depth of 40 inches. They have fewer rock fragments than Pennichuck soils and are more acid.

Typical pedon of Chatfield fine sandy loam, in an area of Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, very stony, in the town of Candia, 3,850 feet at a bearing of 112 degrees from the junction of New Hampshire Route 101 and Brown Road:

Oe—1 inch to 0; partially decomposed leaf litter.

Ap—0 to 7 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable; many fine, common medium, and few coarse roots; about 10 percent rock fragments; very strongly acid; abrupt wavy boundary.

Bw1—7 to 9 inches; strong brown (7.5YR 4/6) fine sandy loam; weak fine granular structure; friable; many fine, common medium, and few coarse roots; very strongly acid; abrupt broken boundary.

Bw2—9 to 15 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; friable; common fine and few medium roots; about 10 percent rock fragments; very strongly acid; clear wavy boundary.

Bw3—15 to 20 inches; brownish yellow (10YR 6/6) fine sandy loam; weak fine granular structure; friable; common fine and few medium roots; about 10 percent rock fragments; very strongly acid; clear wavy boundary.

C1—20 to 25 inches; light brownish gray (2.5Y 6/2) cobbly fine sandy loam; weak fine granular structure; friable; few fine and medium roots; about 20 percent rock fragments; thin lenses of loamy sand; about 30 percent brownish yellow (10YR 6/6) material; very strongly acid; gradual wavy boundary.

C2—25 to 31 inches; light brownish gray (2.5Y 6/2) cobbly fine sandy loam; weak thin platy structure; friable; few fine roots; about 20 percent rock fragments; about 30 percent yellowish brown (10YR

5/4) material; very strongly acid; abrupt irregular boundary.
R—31 inches; hard bedrock.

The thickness of the solum ranges from 16 to 36 inches. The depth to bedrock ranges from 20 to 40 inches. The content of rock fragments ranges from 5 to 25 percent throughout the profile. Reaction is very strongly acid to moderately acid.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. The Bw horizon has hue of 7.5YR to 2.5Y and value and chroma of 4 to 6. The C horizon, if it occurs, has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4.

Chocorua Series

The Chocorua series consists of very deep, very poorly drained soils that formed in organic material over sandy material. These soils are on outwash plains and terraces and in drainageways on glaciated uplands. Slopes range from 0 to 2 percent.

Chocorua soils are associated with Greenwood, Ossipee, Scarboro, and Pawcatuck soils. Unlike Greenwood and Ossipee soils, they have sandy layers within a depth of 51 inches. Unlike Scarboro soils, they have organic material that is more than 16 inches thick. They do not have the sulfidic material that is characteristic of Pawcatuck soils.

Typical pedon of Chocorua mucky peat, in Bear Brook State Park, 2,500 feet at a bearing of 318 degrees from a campground headquarters:

Oe1—0 to 3 inches; hemic material, dark brown (7.5YR 3/2) broken face and rubbed, brown (7.5YR 4/2) pressed; about 80 percent fibers, 40 percent rubbed; massive; friable; many very fine, fine, and medium roots; very strongly acid; abrupt smooth boundary.
Oe2—3 to 7 inches; hemic material, dark reddish brown (5YR 3/2) broken face, rubbed, and pressed; about 30 percent fibers, 20 percent rubbed; moderate medium granular structure; friable; common very fine, fine, and medium roots; very strongly acid; clear smooth boundary.
Oe3—7 to 15 inches; hemic material, dark reddish brown (5YR 3/2) broken face, rubbed, and pressed; about 40 percent fibers, 25 percent rubbed; massive; friable; common fine and medium roots; about 10 percent woody coarse fragments; very strongly acid; abrupt smooth boundary.
Oe4—15 to 25 inches; hemic material, dark brown (7.5YR 3/2) broken face, rubbed, and pressed; about 65 percent fibers, 35 percent rubbed; moderate medium platy structure; friable; few fine and medium roots; at the lower boundary, a discontinuous layer that is as much as 3 inches thick, is black (5YR 2.5/1) broken face, rubbed, and pressed, and has 25 percent fibers, 10 percent rubbed; very strongly acid; clear wavy boundary.
C1—25 to 50 inches; light brownish gray (2.5Y 6/2) coarse sand; massive; very friable; about 10 percent fine gravel; moderately acid; gradual smooth boundary.
C2—50 to 60 inches; yellowish brown (10YR 5/6) sand; massive; very friable; moderately acid.

The thickness of the organic material ranges from 16 to 50 inches. Woody coarse fragments make up less than 15 percent of the organic part of the profile.

The surface tier is hemic or fibric. It has hue of 2.5YR to 10YR and value and chroma of 1 to 4. The subsurface tier is hemic or sapric. It has hue of 2.5YR to 10YR and value and chroma of 1 to 4. Some pedons have a bottom tier, which has characteristics similar to those of the subsurface tier.

The C horizon is neutral in hue or has hue of 10YR to 5Y. It has value of 4 to 6 and chroma of 0 to 6. It is coarse sand, sand, loamy sand, or loamy fine sand. The content of rock fragments ranges from 0 to 40 percent.

Deerfield Series

The Deerfield series consists of very deep, moderately well drained soils that formed in glacial outwash. These soils are on outwash plains and terraces. Slopes range from 0 to 8 percent.

Deerfield soils are associated with Windsor, Pipestone, Hinckley, Eldridge, and Pootatuck soils. Unlike Windsor soils, they have mottles with chroma of 2 or less within a depth of 40 inches. They do not have the red colors in the upper part of the subsoil or the mottles in the subsurface layer that are characteristic of Pipestone soils. They have fewer rock fragments than Hinckley soils and less silt and clay in the substratum than Eldridge soils. Unlike Pootatuck soils, they are not characterized by an irregular decrease in content of organic carbon with increasing depth.

Typical pedon of Deerfield fine sandy loam, 0 to 3 percent slopes, in the town of Nottingham, 800 feet at a bearing of 300 degrees from the intersection of Gile Road and New Hampshire Route 152:

Ap—0 to 8 inches; dark brown (10YR 3/3) fine sandy loam, light yellowish brown (10YR 6/4) dry; moderate coarse granular structure; friable; many fine roots; about 5 percent fine gravel; moderately acid; abrupt smooth boundary.

Bw1—8 to 12 inches; dark yellowish brown (10YR 4/6) loamy sand; weak fine granular structure; very friable; many fine roots; about 5 percent fine gravel; slightly acid; clear smooth boundary.
Bw2—12 to 15 inches; yellowish brown (10YR 5/6) loamy sand; massive; very friable; many fine roots; about 5 percent fine gravel; slightly acid; clear smooth boundary.
Bw3—15 to 21 inches; yellowish brown (10YR 5/6) sand; common coarse distinct strong brown (7.5YR 4/8) and common fine distinct light gray (10YR 7/2) mottles; massive; very friable; common fine roots; about 5 percent fine gravel; slightly acid; clear smooth boundary.
C1—21 to 24 inches; yellowish brown (10YR 5/4) coarse sand; common fine distinct light gray (10YR 7/2), common fine distinct strong brown (7.5YR 5/6), and many coarse distinct brown (10YR 4/3) mottles; massive; very friable; few fine roots; about 5 percent fine gravel; slightly acid; abrupt smooth boundary.
C2—24 to 28 inches; dark yellowish brown (10YR 4/4) coarse sand; common coarse prominent yellowish red (5YR 4/8), common fine distinct strong brown (7.5YR 5/6), and common fine distinct light gray (10YR 7/2) mottles; massive; very friable; about 10 percent fine gravel; slightly acid; abrupt smooth boundary.
C3—28 to 39 inches; light yellowish brown (2.5Y 6/4) sand; few medium distinct light brownish gray (10YR 6/2) and common coarse prominent strong brown (7.5YR 5/8) mottles; massive; very friable; about 5 percent fine gravel; slightly acid; abrupt smooth boundary.
C4—39 to 60 inches; yellowish brown (10YR 5/4) sand; common medium distinct yellowish red (5YR 5/8) and common medium distinct light yellowish brown (2.5Y 6/4) mottles; massive; very friable; about 5 percent fine gravel; strata of coarse sand; moderately acid.

The thickness of the solum ranges from 15 to 35 inches. The content of rock fragments, mostly fine gravel, ranges from 0 to 15 percent. Reaction ranges from very strongly acid to slightly acid throughout the profile.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 2 or 3. It is fine sandy loam or loamy sand. The B horizon has hue of 7.5YR to 2.5Y and value and chroma of 3 to 6. It is loamy fine sand, loamy sand, fine sand, or sand. The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 to 4. It is fine sand, sand, or coarse sand.

Eldridge Series

The Eldridge series consists of very deep, moderately well drained soils that formed in marine or glaciolacustrine deposits. These soils are on plains or terraces. Slopes range from 0 to 8 percent.

Eldridge soils are associated with Boxford, Squamscott, and Deerfield soils. They have more sand and less silt and clay in the solum than Boxford soils. They do not have the mottles in the subsurface layer that are characteristic of Squamscott soils. They have more silt and clay in the substratum than Deerfield soils.

Typical pedon of Eldridge fine sandy loam, 0 to 3 percent slopes, in the town of Greenland, 2,800 feet at a bearing of 355 degrees from the junction of Bayside Road and New Hampshire Route 101:

Ap—0 to 5 inches; dark yellowish brown (10YR 3/4) fine sandy loam; moderate medium granular structure; friable; many very fine, many fine, common medium, and few coarse roots; slightly acid; abrupt smooth boundary.
Bw1—5 to 8 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; friable; common very fine, common fine, and few medium roots; slightly acid; clear smooth boundary.
Bw2—8 to 13 inches; yellowish brown (10YR 5/6) loamy fine sand; massive; friable; few very fine and few fine roots; neutral; clear smooth boundary.
Bw3—13 to 17 inches; yellowish brown (10YR 5/4) loamy fine sand; many coarse distinct dark brown (10YR 4/3), few fine prominent strong brown (7.5YR 5/8), and few fine prominent light brownish gray (2.5Y 6/2) mottles; massive; friable; few very fine and few fine roots; neutral; abrupt smooth boundary.
Bw4—17 to 23 inches; dark yellowish brown (10YR 4/4) loamy fine sand; few fine prominent light olive gray (5Y 6/2), common medium prominent grayish brown (2.5Y 5/2), and common medium prominent yellowish red (5YR 5/6) mottles; massive; friable; few very fine and few fine roots; few very fine and fine vesicular pores; slightly acid; abrupt smooth boundary.
2Cg1—23 to 31 inches; grayish brown (2.5Y 5/2) silt loam; few fine prominent gray (5Y 5/1), common medium prominent yellowish red (5YR 5/6), and many medium prominent yellowish brown (10YR 5/6) mottles; weak medium platy structure; firm; few very fine, few fine, and few medium roots; few very fine vesicular pores; moderately acid; abrupt smooth boundary.

2Cg2—31 to 57 inches; olive gray (5Y 5/2) loamy very fine sand; few medium prominent yellowish red (5YR 5/8) and common coarse prominent dark yellowish brown (10YR 4/6) mottles; weak medium platy structure; firm; common fine discontinuous irregular pores; strongly acid; abrupt smooth boundary.

2C—57 to 62 inches; light olive brown (2.5Y 5/4) very fine sandy loam; common coarse prominent gray (N 6/0) and few medium prominent strong brown (7.5YR 5/6) mottles; massive; firm; few very fine vesicular pores; moderately acid.

The thickness of the solum and the depth to lithologic discontinuity range from 16 to 30 inches. Reaction ranges from strongly acid to neutral throughout the profile.

The A horizon has hue of 10YR, value of 3, and chroma of 2 to 4. The E horizon, if it occurs, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 or 3. It is fine sandy loam. The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 4 to 6. It is fine sandy loam, loamy fine sand, loamy sand, or fine sand. The C horizon and the E′ horizon, if it occurs, have hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 or 4. They are sand or fine sand. The 2C horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 2 to 4. It is dominantly silty clay loam, silt loam, very fine sandy loam, or loamy very fine sand. In some pedons, however, it has thin layers or lenses of fine sand or very fine sand.

Greenwood Series

The Greenwood series consists of very deep, very poorly drained soils that formed in organic material. These soils are in bogs, kettles, and upland till basins. Slopes range from 0 to 2 percent.

Greenwood soils are associated with Chocorua, Ossipee, and Ipswich soils. Unlike Chocorua and Ossipee soils, they have organic material that is more than 51 inches thick. They do not have the sulfidic material that is characteristic of Ipswich soils.

Typical pedon of Greenwood mucky peat, in the town of Kensington, 575 feet southwest of the intersection of Osgood Road and New Hampshire Route 150 and 1,050 feet northwest of Kensington Elementary School:

Oe1—0 to 10 inches; hemic material, black (5YR 2/1) broken face, black (N 2/0) rubbed; about 70 percent fibers, 40 percent rubbed; massive; extremely acid; abrupt smooth boundary.

Oe2—10 to 16 inches; hemic material, dark reddish brown (5YR 2/2) broken face and rubbed; about 75 percent fibers, 30 percent rubbed; weak medium angular blocky structure; very strongly acid; abrupt smooth boundary.

Oe3—16 to 60 inches; hemic material, dark reddish brown (5YR 2/2) broken face and rubbed; about 60 percent fibers, 30 percent rubbed; massive; extremely acid.

The soils have hue of 10YR or 5YR, value of 2 or 3, and chroma of 1 or 2. Woody fragments make up 5 percent or less, by volume, of individual layers. Some pedons have sapric or fibric layers.

Hinckley Series

The Hinckley series consists of very deep, excessively drained soils that formed in glacial outwash (fig. 8). These soils are on eskers, kames, terraces, deltas, and outwash plains. Slopes range from 0 to 60 percent.

Hinckley soils are associated with Udorthents and with Deerfield, Hoosic, and Windsor soils. Unlike Udorthents, they have natural horizon sequences. Unlike Deerfield and Windsor soils, they have more than 35 percent rock fragments in the control section. Unlike Hoosic soils, they do not have a texture of fine sandy loam that extends below a depth of 10 inches.

Typical pedon of Hinckley fine sandy loam, 3 to 8 percent slopes, in the town of Londonderry, 3,050 feet at a bearing of 328 degrees from the junction of Wiley Hill Road and West Road:

Oe—1 inch to 0; partially decomposed leaf litter.

Ap—0 to 5 inches; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; about 10 percent fine gravel; very strongly acid; abrupt smooth boundary.

Bw1—5 to 10 inches; dark yellowish brown (10YR 4/6) gravelly fine sandy loam; weak fine granular structure; very friable; many fine roots; about 10 percent fine gravel and 20 percent coarse gravel; very strongly acid; gradual wavy boundary.

Bw2—10 to 24 inches; yellowish brown (10YR 5/6) very gravelly loamy sand; single grain; loose; common fine roots; about 15 percent fine gravel and 35 percent coarse gravel and cobbles; very strongly acid; abrupt wavy boundary.

C1—24 to 31 inches; pale brown (10YR 6/3) coarse sand; single grain; loose; few fine roots; about 10 percent fine gravel; few coarse yellowish red (5YR 5/8) streaks; very strongly acid; abrupt wavy boundary.

C2—31 to 43 inches; pale brown (10YR 6/3) very gravelly coarse sand; single grain; loose; few fine roots; about 15 percent fine gravel and 35 percent

Figure 8.—Profile of Hinckley soils. Stratification and crossbedding of glacial outwash are common in the substratum of these soils.

coarse gravel and cobbles; few coarse yellowish red (5YR 5/8) streaks; very strongly acid; clear wavy boundary.

C3—43 to 60 inches; pale brown (10YR 6/3) coarse sand; single grain; loose; about 10 percent fine gravel; few coarse yellowish red (5YR 5/8) streaks; very strongly acid.

The thickness of the solum ranges from 12 to 30 inches. The content of rock fragments in individual subhorizons ranges from 10 to 50 percent in the solum and from 10 to 70 percent in the substratum. Reaction ranges from extremely acid to moderately acid.

The A horizon has hue of 10YR, value of 3, and chroma of 2 or 3. It is fine sandy loam, gravelly fine sandy loam, loamy sand, or very fine sandy loam. The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 6 to 8. It is gravelly fine sandy loam, gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sand, or gravelly coarse sand. The C horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 3 to 6. It is coarse sand, gravelly coarse sand, very gravelly coarse sand, or gravelly sand.

Hollis Series

The Hollis series consists of shallow, well drained and somewhat excessively drained soils that formed in glacial till. These soils are on hills and ridges in bedrock-controlled glaciated uplands. Slopes range from 3 to 60 percent.

Hollis soils are associated with Chatfield, Charlton, and Pennichuck soils. Unlike all of the associated soils, they are less than 20 inches deep over bedrock.

Typical pedon of Hollis fine sandy loam, in an area of Chatfield-Hollis-Canton complex, 15 to 35 percent slopes, very stony, in the town of Windham, 8,650 feet at a bearing of 86 degrees from the intersection of New Hampshire Routes 111 and 128:

A—0 to 2 inches; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; friable; many fine roots; very strongly acid; abrupt smooth boundary.

Bw—2 to 13 inches; strong brown (7.5YR 5/6) cobbly fine sandy loam; weak fine granular structure; friable; many fine and medium roots; about 20 percent cobbles; very strongly acid; abrupt wavy boundary.

R—13 inches; hard bedrock.

The thickness of the solum and the depth to bedrock range from 10 to 20 inches. The solum is sandy loam, fine sandy loam, or loam. The content of rock fragments ranges from 5 to 35 percent.

The A horizon has hue of 10YR and value and chroma of 2 or 3. The Bw horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8.

Hoosic Series

The Hoosic series consists of very deep, somewhat excessively drained soils that formed in stratified glaciofluvial drift. These soils are on kame terraces, eskers, and deltas. Slopes range from 0 to 35 percent.

Hoosic soils are associated with Hinckley, Canton, and Pennichuck soils. Unlike Hinckley soils, they are fine sandy loam in the fine-earth fraction to a depth of more than 10 inches. They have more sand and less silt in the solum than Canton soils. Unlike Pennichuck soils, they are more than 40 inches deep over bedrock.

Typical pedon of Hoosic gravelly fine sandy loam, 0 to 3 percent slopes, in the town of Stratham, 3,100 feet south of the intersection of Lovell Road and New Hampshire Route 101; 3,250 feet west of the intersection of Lovell Road and Willowbrook Avenue:

Oi—2 to 1 inch; leaf litter and twigs; abrupt smooth boundary.

Oe—1 inch to 0; black (5YR 2/1), partially decomposed organic material; common fine roots; extremely acid; abrupt smooth boundary.

Ap—0 to 8 inches; brown (10YR 4/3) gravelly fine sandy loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; common fine and medium roots; about 20 percent gravel; very strongly acid; clear wavy boundary.

Bw1—8 to 15 inches; yellowish brown (10YR 5/6) very gravelly fine sandy loam; weak fine granular structure; friable; common fine and medium roots; about 50 percent gravel; very strongly acid; clear wavy boundary.

Bw2—15 to 22 inches; yellowish brown (10YR 5/6) very gravelly loamy sand; weak fine granular structure; friable; common fine and medium roots; about 60 percent fine gravel; very strongly acid; abrupt smooth boundary.

2C—22 to 60 inches; yellowish brown (10YR 5/4) very gravelly coarse sand; single grain; loose; few fine roots; about 45 percent fine gravel and 5 percent coarse gravel; strongly acid.

The thickness of the solum ranges from 14 to 36 inches. The content of rock fragments ranges from 15 to 70 percent in the solum and from 35 to 70 percent in the substratum. The rock fragments are dominantly angular or subrounded phyllite pebbles. Reaction is very strongly acid within a depth of 30 inches and ranges to slightly acid below that depth.

The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 4 to 6. It is fine sandy loam, sandy loam, loamy sand, or sand. The loamy sand or sand occurs only in the lower part of the horizon. The 2C horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 4.

Ipswich Series

The Ipswich series consists of very deep, very poorly drained soils that formed in organic material. These soils are in tidal marshes. Slopes are 0 to 1 percent.

Ipswich soils are associated with Greenwood, Pawcatuck, and Westbrook soils. Unlike Greenwood soils, they have sulfidic material. Unlike Pawcatuck and Westbrook soils, they have organic material that is more than 51 inches thick.

Typical pedon of Ipswich mucky peat, in the town of Hampton, 10,300 feet at a bearing of 78 degrees from the intersection of New Hampshire Route 88 and U.S. Route 1:

Oe1—0 to 8 inches; hemic material, very dark grayish brown (10YR 3/2) broken face and rubbed; about 65 percent fibers, 40 percent rubbed; massive; friable, nonsticky; many fine and many medium roots; about 5 percent mineral material; neutral; abrupt smooth boundary.

Oe2—8 to 15 inches; hemic material, black (10YR 2/1) broken face and rubbed; about 65 percent fibers, 20 percent rubbed; massive; friable, slightly sticky; common fine and medium roots; about 10 percent mineral material; neutral; abrupt smooth boundary.

Oe3—15 to 31 inches; hemic material, dark reddish brown (5YR 3/2) broken face and rubbed; about 50 percent fibers, 20 percent rubbed; massive; friable, slightly sticky; few fine roots; about 20 percent mineral material; neutral; abrupt smooth boundary.

Oe4—31 to 42 inches; hemic material, dark reddish brown (5YR 2/2) broken face, black (5YR 2/1) rubbed; about 65 percent fibers, 20 percent rubbed; massive; friable, slightly sticky; few fine roots; about 10 percent mineral material; neutral; gradual smooth boundary.

Oe5—42 to 63 inches; hemic material, dark reddish brown (5YR 2/2) broken face and rubbed; about 50 percent fibers, 17 percent rubbed; massive; friable, slightly sticky; about 15 percent mineral material; neutral.

The surface tier has hue of 10YR to 5Y, value of 2 to 4, and chroma of 1 to 3. It is fibric or hemic. The subsurface tier has hue of 5YR to 5Y, value of 2 to 4, and chroma of 1 to 3. The bottom tier is neutral in hue or has hue of 5YR to 5Y. It has value of 2 to 4 and chroma of 0 to 3. It is hemic or sapric.

Lim Series

The Lim series consists of very deep, poorly drained soils that formed in alluvial sediments. These soils are on flood plains. Slopes range from 0 to 3 percent.

Lim soils are associated with Pootatuck and Pipestone soils. Unlike Pootatuck soils, they have dominantly gray matrix colors. They do not have the horizon development of the Pipestone soils and, unlike

those soils, are not characterized by a regular decrease in content of organic carbon with increasing depth.

Typical pedon of Lim very fine sandy loam, in an area of Lim-Pootatuck complex, in the town of Brentwood, 3,000 feet at a bearing of 140 degrees from the junction of New Hampshire Route 111A and Prescott Road:

Oe—1 inch to 0; dark reddish brown (5YR 3/2) hemic material; about 75 percent fiber unrubbed, 40 percent rubbed.
A—0 to 8 inches; very dark grayish brown (10YR 3/2) very fine sandy loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; common fine and common medium roots; strongly acid; abrupt smooth boundary.
Cg1—8 to 18 inches; dark grayish brown (2.5Y 4/2) very fine sandy loam; many coarse distinct gray (5Y 5/1) mottles; massive; friable; few fine roots; strongly acid; clear wavy boundary.
Cg2—18 to 26 inches; dark grayish brown (2.5Y 4/2) very fine sandy loam; many coarse distinct gray (5Y 5/1) and common fine prominent brown (7.5YR 4/4) mottles; massive; friable; few fine roots; strongly acid; clear wavy boundary.
Cg3—26 to 31 inches; gray (5Y 6/1) very fine sandy loam; many medium prominent strong brown (7.5YR 5/6) mottles; massive; friable; strongly acid; abrupt smooth boundary.
Cg4—31 to 38 inches; dark gray (5Y 4/1) very fine sandy loam; common fine faint gray (5Y 5/1) mottles; massive; friable; moderately acid; abrupt smooth boundary.
Ab—38 to 44 inches; very dark grayish brown (10YR 3/2) fine sandy loam; massive; friable; moderately acid; abrupt smooth boundary.
C'g—44 to 60 inches; gray (5Y 5/1) fine sand; massive; friable; stratified with coarse sand; neutral.

Reaction ranges from very strongly acid to neutral in the A horizon and from strongly acid to neutral in the C horizon.

The A horizon has hue of 2.5Y or 10YR, value of 2 to 4, and chroma of 1 or 2. It is silt loam or very fine sandy loam. The C horizon has hue of 10YR to 5Y, value of 3 to 6, and chroma of 1 or 2. It is very fine sandy loam or fine sandy loam in the upper part and loamy fine sand to coarse sand in the lower part.

Maybid Series

The Maybid series consists of very deep, very poorly drained soils that formed in silty and clayey marine material. These soils are on marine plains and terraces. Slopes range from 0 to 3 percent.

Maybid soils are associated with Scitico soils. Unlike Scitico soils, they have a fluid A horizon.

Typical pedon of Maybid silt loam, in the town of Brentwood, 3,175 feet at a bearing of 190 degrees from the junction of North Road and Prescott Road:

Oi—2 inches to 0; fibric material, dark brown (10YR 4/3) broken face; about 90 percent fibers rubbed; abrupt smooth boundary.
A—0 to 9 inches; very dark gray (10YR 3/1) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; slightly fluid; many fine and common medium roots; moderately acid; abrupt wavy boundary.
Bg—9 to 26 inches; olive gray (5Y 4/2) silty clay loam; many coarse prominent dark yellowish brown (10YR 4/6), common coarse faint gray (5Y 5/1), and few medium prominent yellowish brown (10YR 5/4) mottles; moderate coarse prismatic structure parting to weak fine angular blocky; firm; few fine roots; neutral; diffuse wavy boundary.
Cg—26 to 45 inches; gray (N 5/0) silty clay; many coarse prominent strong brown (7.5YR 5/8) and common medium distinct olive gray (5Y 5/2) mottles; massive; firm; neutral; gradual wavy boundary.
C—45 to 51 inches; yellowish brown (10YR 5/6) loam; many coarse prominent gray (N 5/0) and many coarse faint brown (10YR 5/3) mottles; massive; friable; neutral; clear wavy boundary.
C'g—51 to 63 inches; gray (N 5/0) silty clay; many coarse prominent yellowish brown (10YR 5/6) and few medium faint light gray (N 6/0) mottles; massive; firm; neutral.

The thickness of the solum ranges from 18 to 30 inches. Reaction ranges from strongly acid to moderately acid in the A horizon and from strongly acid to neutral in the B and C horizons.

The A horizon has hue of 10YR to 5Y, value of 2 or 3, and chroma of 1 or 2. The Bg and C horizons are neutral in hue or have hue of 5Y or 5GY. They have value of 4 or 5. The Bg horizon has chroma of 0 to 2. The C horizon has chroma of 0 or 1. It is loam, silty clay loam, or silty clay.

Montauk Series

The Montauk series consists of very deep, well drained soils that formed in glacial till. These soils are on glaciated uplands. Slopes range from 3 to 25 percent.

Montauk soils are associated with Canton, Paxton, and Scituate soils. Unlike Canton soils, they have a firm consistence and a loamy sand or fine sandy loam fabric

in the substratum. They have more sand in the substratum than Paxton soils and, unlike those soils, have more than 20 percent lenses of loamy sand in the fabric of the substratum. They do not have the mottles that are characteristic of Scituate soils.

Typical pedon of Montauk fine sandy loam, 3 to 8 percent slopes, very stony, in the town of Raymond, 4,400 feet south of the junction of New Hampshire Routes 107 and 101 and 1,100 feet north of Onway Lake:

Oi—2 to 1 inch; very dark grayish brown (10YR 3/2) leaf litter; about 80 percent fibers rubbed; many fine roots; abrupt smooth boundary.

Oe—1 inch to 0; black (10YR 2/1), partially decomposed leaf litter; about 30 percent fibers rubbed; many fine roots; abrupt smooth boundary.

A—0 to 1 inch; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; friable; common fine roots; about 10 percent rock fragments, mostly cobbles and stones; very strongly acid; abrupt broken boundary.

Bw1—1 to 13 inches; yellowish brown (10YR 5/6) cobbly fine sandy loam; weak medium angular blocky structure parting to weak medium granular; friable; many fine and medium roots; about 25 percent rock fragments, mostly cobbles and stones; very strongly acid; gradual wavy boundary.

Bw2—13 to 30 inches; light olive brown (2.5Y 5/4) cobbly fine sandy loam; weak medium angular blocky structure parting to weak fine granular; friable; common fine and medium roots; about 30 percent rock fragments, mostly cobbles and stones; very strongly acid; clear wavy boundary.

Cd—30 to 61 inches; light olive gray (5Y 6/2) fine sandy loam; weak very thick platy structure parting to weak fine granular; firm in place, friable removed; few fine vesicular pores; about 5 percent rock fragments; a fabric of 60 percent light gray (5Y 7/2), massive, friable loamy sand and 40 percent olive gray (5Y 5/2), firm very fine sandy loam that has weak thin platy structure; very strongly acid.

The thickness of the solum ranges from 18 to 36 inches. The content of rock fragments ranges from 5 to 30 percent throughout the profile. Reaction ranges from very strongly acid to moderately acid.

The A horizon has hue of 10YR and value and chroma of 2 to 4. Some pedons have an E horizon, which is similar to the A horizon. The Bw horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 4 to 8. It is fine sandy loam or sandy loam. The Cd horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 to 4. The composite texture of this horizon is fine sandy loam or sandy loam, but the horizon has a fabric of loamy sand, loamy fine sand, fine sandy loam, and very fine sandy loam. Fine sandy loam or very fine sandy loam makes up at least 20 percent of the horizon but not more than 80 percent.

Newfields Series

The Newfields series consists of very deep, moderately well drained soils that formed in glacial till. These soils are on glaciated uplands. Slopes range from 0 to 15 percent.

Newfields soils are associated with Canton, Scituate, and Walpole soils. Unlike Canton soils, they are mottled. They do not have the firm substratum or the loamy sand or fine sandy loam fabric that is characteristic of Scituate soils. They do not have the dominantly gray matrix colors that are characteristic of Walpole soils.

Typical pedon of Newfields fine sandy loam, in an area of Scituate-Newfields complex, 3 to 8 percent slopes, in the town of Atkinson, 300 feet south of a point on Province Hill Road that is 0.35 mile from Salem Road:

Oi—1 inch to 0; loose leaves and twigs; abrupt smooth boundary.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) fine sandy loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine, many medium, and common coarse roots; about 5 percent fine gravel; moderately acid; abrupt smooth boundary.

Bw1—9 to 20 inches; yellowish brown (10YR 5/6) fine sandy loam; weak medium granular structure; very friable; many fine, common medium, and few coarse roots; about 5 percent fine gravel and 5 percent coarse gravel; moderately acid; clear wavy boundary.

Bw2—20 to 28 inches; olive yellow (2.5Y 6/6) fine sandy loam; weak medium granular structure; very friable; common fine and few medium roots; about 10 percent gravel; moderately acid; clear wavy boundary.

BC—28 to 35 inches; light yellowish brown (2.5Y 6/3) fine sandy loam; many medium distinct light gray (5Y 7/2) and few fine distinct yellowish brown (10YR 5/6) mottles; massive; friable; few fine and few medium roots; about 5 percent fine gravel; moderately acid; clear wavy boundary.

2C1—35 to 43 inches; light yellowish brown (2.5Y 6/4) gravelly loamy sand; many medium distinct light gray (5Y 7/2), many medium prominent strong brown (7.5YR 5/8), and common fine prominent yellowish red (5YR 5/8) mottles; massive; friable; about 15 percent fine gravel and 10 percent coarse

gravel; moderately acid; clear wavy boundary.
2C2—43 to 64 inches; pale olive (5Y 6/3) gravelly loamy sand; common fine prominent strong brown (7.5YR 5/8) and many medium faint light gray (5Y 7/2) mottles; massive; friable; about 20 percent fine gravel and 5 percent coarse gravel; moderately acid.

The thickness of the solum ranges from 15 to 36 inches. The content of rock fragments ranges from 0 to 30 percent in the solum and from 5 to 60 percent in the substratum. Reaction is extremely acid to slightly acid throughout the profile.

The A horizon has hue of 10YR and value and chroma of 2 to 4. It is fine sandy loam, sandy loam, or loam. The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 8. It is fine sandy loam, sandy loam, or loam. Some pedons have a BC horizon, which has colors and textures similar to those of the Bw horizon. The 2C horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 2 to 4. It is loamy fine sand, fine sand, loamy sand, or sand.

Ossipee Series

The Ossipee series consists of very deep, very poorly drained soils that formed in organic material. These soils are on marine, lacustrine, and outwash plains and terraces and on glaciated uplands. Slopes range from 0 to 2 percent.

Ossipee soils are associated with Chocorua, Greenwood, Scarboro, and Westbrook soils. Unlike Chocorua and Greenwood soils, they have loamy layers within a depth of 51 inches. Unlike Scarboro soils, they have organic material that is more than 16 inches thick. They do not have the sulfidic material that is characteristic of Westbrook soils.

Typical pedon of Ossipee mucky peat, in the town of North Hampton, 1,200 feet at a bearing of 65 degrees from the Hampton toll booth on Interstate 95:

Oe1—0 to 4 inches; hemic material, very dark gray (10YR 3/1) broken face, rubbed, and pressed; about 90 percent fibers, 70 percent rubbed; many medium roots; about 20 percent woody coarse fragments; very strongly acid; abrupt smooth boundary.
Oe2—4 to 20 inches; hemic material, dark brown (7.5YR 3/1) broken face and pressed, dark reddish brown (5YR 2/2) rubbed; about 75 percent fibers, 35 percent rubbed; few fine roots; about 5 percent woody coarse fragments; about 2 percent mineral material; very strongly acid; clear smooth boundary.
Oa—20 to 26 inches; sapric material, black (N 2/0) broken face and rubbed, black (5YR 2/1) pressed; about 20 percent fibers, 10 percent rubbed; few fine roots; about 10 percent mineral material; very strongly acid; abrupt smooth boundary.
Cg1—26 to 30 inches; gray (5Y 5/1) loam; many medium faint gray (N 5/0) mottles; massive; friable, slightly sticky and nonplastic; slightly acid; clear smooth boundary.
Cg2—30 to 60 inches; greenish gray (5GY 5/1) clay loam; many medium distinct bluish gray (5B 5/1) mottles; massive; firm, sticky and plastic; few fine roots; slightly acid.

The thickness of the organic material ranges from 16 to 50 inches. Woody coarse fragments make up less than 15 percent of the organic material but as much as 20 percent of individual layers of the organic material.

The surface tier is hemic or fibric. It has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 or 2. The subsurface tier is hemic or sapric. It has hue of 5YR to 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. Some pedons have a bottom tier, which has characteristics similar to those of the subsurface tier.

The C horizon is neutral in hue or has hue of 2.5Y to 5B. It has value of 4 to 6 and chroma of 0 to 2. It is fine sandy loam, very fine sandy loam, loam, silt loam, silty clay loam, or clay loam.

Pawcatuck Series

The Pawcatuck series consists of very deep, very poorly drained soils that formed in organic material over sandy material. These soils are in tidal marshes. Slopes are 0 to 1 percent.

Pawcatuck soils are associated with Ipswich, Chocorua, and Westbrook soils. Unlike Ipswich soils, they have organic material that is less than 51 inches thick. Unlike Westbrook soils, they have sandy underlying layers. Unlike Chocorua soils, they have sulfidic material.

Typical pedon of Pawcatuck mucky peat, in the town of Hampton, 5,750 feet at a bearing of 65 degrees from the intersection of New Hampshire Route 88 and U.S. Route 1:

Oe1—0 to 7 inches; hemic material, dark olive gray (5Y 3/2) broken face, very dark grayish brown (2.5Y 3/2) rubbed; about 50 percent fibers, 35 percent rubbed; massive; friable, slightly sticky; many fine and medium roots; about 10 percent mineral material; slightly acid; abrupt smooth boundary.
Oe2—7 to 13 inches; hemic material, dark brown (10YR 3/3) broken face, very dark grayish brown (2.5Y 3/2) rubbed; about 50 percent fibers, 17 percent rubbed; massive; friable, slightly sticky; common fine and

medium roots; about 10 percent mineral material; neutral; abrupt smooth boundary.

Oe3—13 to 24 inches; hemic material, dark olive gray (5Y 3/2) broken face and rubbed; about 35 percent fibers, 17 percent rubbed; massive; friable, slightly sticky; few fine roots; about 15 percent mineral material; neutral; clear smooth boundary.

Oe4—24 to 35 inches; hemic material, very dark gray (5Y 3/1) broken face and rubbed; about 35 percent fibers, 17 percent rubbed; massive; friable, slightly sticky; about 20 percent mineral material; neutral; clear smooth boundary.

C1—35 to 43 inches; dominantly dark gray (5Y 4/1) sand; dark olive gray (5Y 3/2) in part of the layer; single grain; loose, nonsticky; about 15 percent organic material; mildly alkaline; clear smooth boundary.

C2—43 to 60 inches; dark gray (5Y 4/1) sand; single grain; loose, nonsticky; mildly alkaline.

The thickness of the organic material ranges from 16 to 51 inches. Reaction ranges from strongly acid to mildly alkaline.

The surface and subsurface tiers have hue of 5YR to 5Y, value of 2 to 5, and chroma of 1 to 3. The surface tier is fibric or hemic. The subsurface tier is hemic or sapric. Some pedons have a bottom tier, which has characteristics similar to those of the subsurface tier.

The C horizon is neutral in hue or has hue of 10YR to 5BG. It has value of 2 to 7 and chroma of 0 to 3. It is sand or loamy sand.

Paxton Series

The Paxton series consists of very deep, well drained soils that formed in compact glacial till. These soils are on drumlins and till plains in the glaciated uplands. Slopes range from 3 to 35 percent.

Paxton soils are associated with Charlton, Montauk, and Woodbridge soils. Unlike Charlton soils, they have a firm or very firm substratum. They do not have the loamy sand or fine sandy loam fabric in the substratum that is characteristic of Montauk soils. They do not have the mottles that are characteristic of Woodbridge soils.

Typical pedon of Paxton fine sandy loam, 3 to 8 percent slopes, in the town of Hampton Falls, 1,800 feet southeast of the junction of New Hampshire Route 84 and Crank Road, 1,750 feet northwest of the intersection of New Hampshire Route 84 and an unnamed road parallel to Interstate 95:

Oi—2 inches to 0; pine needles and twigs; abrupt smooth boundary.

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) fine sandy loam; moderate fine granular structure; very friable; common fine and medium roots; about 10 percent rock fragments, mostly gravel; very strongly acid; abrupt smooth boundary.

Bw1—7 to 11 inches; brownish yellow (10YR 6/6) gravelly fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; about 15 percent rock fragments, mostly gravel; very strongly acid; clear wavy boundary.

Bw2—11 to 18 inches; light yellowish brown (2.5Y 6/4) fine sandy loam; weak medium platy structure; friable; few fine roots; about 10 percent rock fragments; very strongly acid; clear wavy boundary.

Cd1—18 to 28 inches; olive (5Y 5/3) fine sandy loam; moderate medium platy structure; very firm; many fine vesicular pores; about 10 percent rock fragments; about 5 percent pale olive (5Y 6/3) loamy fine sand between structural units; very strongly acid; clear wavy boundary.

Cd2—28 to 60 inches; olive (5Y 5/4) loam; moderate medium platy structure; very firm; many fine vesicular pores; about 10 percent rock fragments; very strongly acid.

The thickness of the solum ranges from 18 to 40 inches and typically is the same as the depth to a dense substratum. The content of rock fragments ranges from 5 to 35 percent throughout the profile. Reaction is very strongly acid to moderately acid.

The A horizon has hue of 10YR and value and chroma of 2 to 4. It is fine sandy loam or loam. The Bw horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 4 to 8. It is fine sandy loam, sandy loam, or loam. The BC horizon, if it occurs, has colors and textures similar to those of the Bw horizon. The Cd horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 to 4. It is dominantly fine sandy loam or loam and is very firm or firm. In some pedons the upper part of the C horizon is friable. In some pedons thin lenses of loamy sand make up as much as 20 percent of the C horizon.

Pennichuck Series

The Pennichuck series consists of moderately deep, well drained soils that formed in glacial till. These soils are on bedrock-controlled uplands. Slopes range from 3 to 15 percent.

Pennichuck soils are associated with Hoosic, Chatfield, Charlton, and Hollis soils. Unlike Hoosic and Charlton soils, they are less than 40 inches deep over bedrock. Unlike Hollis soils, they are more than 20 inches deep over bedrock. They have more rock fragments than Chatfield soils and are less acid.

Typical pedon of Pennichuck channery very fine sandy loam, 3 to 8 percent slopes, in the town of

Greenland, 4,500 feet at a bearing of 270 degrees from the junction of New Hampshire Route 101 and Portsmouth Avenue:

Ap—0 to 11 inches; dark brown (10YR 3/3) channery very fine sandy loam, light yellowish brown (10YR 6/4) dry; moderate medium granular structure; friable; many very fine, many fine, and common medium roots; about 10 percent fine channers and 5 percent coarse channers; neutral; abrupt smooth boundary.

Bw1—11 to 18 inches; dark yellowish brown (10YR 4/6) very channery fine sandy loam; weak fine granular structure; friable; many very fine, many fine, and common medium roots; about 30 percent fine channers and 10 percent coarse channers; slightly acid; clear wavy boundary.

Bw2—18 to 25 inches; yellowish brown (10YR 5/6) very channery fine sandy loam; weak fine granular structure; friable; many very fine and many fine roots; about 40 percent fine channers and 10 percent coarse channers; slightly acid; abrupt smooth boundary.

C—25 to 36 inches; dark yellowish brown (10YR 4/4) very channery loamy coarse sand; massive; friable; common very fine and common fine roots; about 45 percent fine channers and 15 percent coarse channers; slightly acid; abrupt wavy boundary.

R—36 inches; unweathered bedrock.

The thickness of the solum and the depth to bedrock range from 20 to 40 inches. Most pedons have at least a thin C horizon. Reaction ranges from moderately acid to neutral. The content of rock fragments ranges from 10 to 65 percent in the solum and from 35 to 90 percent in the substratum.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. It is channery fine sandy loam, channery loam, or channery very fine sandy loam. The Bw horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6. It is channery or very channery fine sandy loam. The C horizon has hue of 10YR to 5Y, value of 4 or 5, and chroma of 2 to 4. It is very channery fine sandy loam, very channery sandy loam, very channery coarse sandy loam, or very channery loamy coarse sand.

Pipestone Series

The Pipestone series consists of very deep, somewhat poorly drained soils that formed in glacial outwash. These soils are on outwash plains and terraces. Slopes range from 0 to 5 percent.

Pipestone soils are associated with Deerfield, Squamscott, Scarboro, Raynham, and Lim soils. They are redder in the upper part of the subsoil than Deerfield soils and, unlike those soils, have a mottled subsurface layer. They have less silt and clay in the substratum than Squamscott soils. They do not have the histic epipedon that is characteristic of Scarboro soils. They have less silt and more sand in the solum than Raynham soils. Unlike Lim soils, they are characterized by a regular decrease in content of organic carbon with increasing depth and by horizon development.

Typical pedon of Pipestone sand, 0 to 5 percent slopes, in the town of Newton, 400 feet west of a point on Gale Village Road that is 1,600 feet from New Hampshire Route 108:

Oe—2 inches to 0; dusky red (2.5YR 3/2), partially decomposed organic material; many fine and medium roots; extremely acid; abrupt smooth boundary.

Oa—0 to 1 inch; black (5YR 2/1), decomposed organic material; many fine, medium, and coarse roots; extremely acid; abrupt smooth boundary.

E—1 to 6 inches; very dark gray (10YR 3/1) sand; many medium distinct gray (10YR 5/1) mottles; weak very thick platy structure parting to weak fine granular; very friable; many fine, medium, and coarse roots; extremely acid; clear wavy boundary.

Bhs—6 to 12 inches; dark red (2.5YR 3/6) fine sand; many medium distinct dark reddish brown (2.5YR 4/2) mottles; moderate fine subangular blocky structure; firm; common fine and medium roots; very strongly acid; clear smooth boundary.

Bs1—12 to 17 inches; yellowish red (5YR 4/6) sand; many coarse faint yellowish red (5YR 3/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; very strongly acid; gradual smooth boundary.

Bs2—17 to 33 inches; light yellowish brown (10YR 6/4) sand; many coarse prominent strong brown (7.5YR 5/6) mottles; massive; very friable; very few fine roots; very strongly acid; clear smooth boundary.

C—33 to 60 inches; yellowish brown (10YR 5/4) sand; massive; very friable; very strongly acid.

The thickness of the solum ranges from 20 to 40 inches. Reaction ranges from very strongly acid to neutral.

The A, E, and B horizons are sand, loamy sand, or fine sand. The A and E horizons have hue of 10YR, value of 3 to 6, and chroma of 1 or 2. The B horizon has hue of 2.5YR to 10YR, value of 3 to 6, and chroma of 2 to 6. The C horizon has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. It is sand or fine sand.

Pootatuck Series

The Pootatuck series consists of very deep, moderately well drained soils that formed in alluvial sediments. These soils are on flood plains. Slopes range from 0 to 3 percent.

Pootatuck soils are associated with Lim and Deerfield soils. They do not have the dominantly gray matrix colors that are characteristic of Lim soils. Unlike Deerfield soils, they are characterized by an irregular decrease in content of organic carbon with increasing depth.

Typical pedon of Pootatuck very fine sandy loam, in an area of Lim-Pootatuck complex, in the town of Epping, 2,300 feet south of the county line and 250 feet west of Camp Lee Road:

Oe—2 inches to 0; hemic material, black (5YR 2/1) broken face and rubbed; about 50 percent fibers, 25 percent rubbed; weak fine granular structure; very friable; common medium, many fine, and many very fine roots; very strongly acid; abrupt wavy boundary.

A—0 to 4 inches; very dark gray (10YR 3/1) very fine sandy loam; moderate medium granular structure; friable; common medium and many fine roots; strongly acid; clear wavy boundary.

Bw1—4 to 14 inches; yellowish brown (10YR 5/6) very fine sandy loam; weak fine granular structure; friable; common fine and medium roots; strongly acid; clear wavy boundary.

Bw2—14 to 26 inches; light olive brown (2.5Y 5/4) loamy very fine sand; many medium distinct light olive gray (5Y 6/2) and few fine prominent strong brown (7.5YR 5/6) mottles; massive; friable; common fine vesicular and few medium tubular pores; strongly acid; diffuse wavy boundary.

C1—26 to 48 inches; light olive brown (2.5Y 5/3) loamy fine sand; many medium distinct light brownish gray (2.5Y 6/2), few fine prominent strong brown (7.5YR 5/6), and common medium distinct brown (10YR 4/3) mottles; massive; friable; traces of organic material; moderately acid; diffuse wavy boundary.

C2—48 to 60 inches; light olive gray (5Y 6/2) fine sand; many medium distinct light olive brown (2.5Y 5/4) and few fine prominent very dark grayish brown (10YR 3/2) mottles; massive; friable; slightly acid.

The thickness of the solum ranges from 20 to 40 inches. Reaction ranges from very strongly acid to slightly acid.

The A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 to 4. It is very fine sandy loam, fine sandy loam, or sandy loam. The Bw horizon has hue of 10YR to 5Y and value and chroma of 3 to 6. It is fine sandy loam, very fine sandy loam, or loamy very fine sand. The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 6. It is loamy fine sand, fine sand, or sand.

Raynham Series

The Raynham series consists of very deep, somewhat poorly drained and poorly drained soils that formed in lacustrine and marine material. These soils are on lake or marine plains or terraces. Slopes range from 0 to 3 percent.

Raynham soils are associated with Scio, Scitico, Squamscott, and Pipestone soils. Unlike Scio soils, they have dominantly gray matrix colors. They have less clay than Scitico soils. They have more silt and less sand in the solum than Squamscott and Pipestone soils.

Typical pedon of Raynham silt loam, in the town of East Kingston, 3,800 feet at a bearing of 140 degrees from the junction of New Hampshire Routes 107A and 108:

Oi—5 to 3 inches; dark brown (10YR 3/3), undecomposed leaves; abrupt smooth boundary.

Oe—3 inches to 0; dark brown (7.5YR 3/4), partially decomposed leaves, twigs, and roots; abrupt smooth boundary.

Ap—0 to 6 inches; black (10YR 2/1) silt loam; moderate fine granular structure; friable; many fine, common medium, and few coarse roots; strongly acid; abrupt wavy boundary.

E—6 to 10 inches; dark grayish brown (2.5Y 4/2) very fine sandy loam; few medium faint grayish brown (2.5Y 5/2) and few medium prominent dark brown (7.5YR 3/4) mottles; weak fine granular structure; friable; common fine and few medium roots; moderately acid; abrupt wavy boundary.

Bw—10 to 16 inches; light olive brown (2.5Y 5/4) loamy very fine sand; many coarse distinct light brownish gray (2.5Y 6/2) and common medium prominent strong brown (7.5YR 5/6) mottles; weak medium platy structure; friable; few fine roots; moderately acid; abrupt wavy boundary.

C1—16 to 23 inches; olive gray (5Y 5/2) silt loam; common medium prominent yellowish brown (10YR 5/4) and common medium prominent strong brown (7.5YR 5/6) mottles; weak medium angular blocky structure; firm; few fine roots; moderately acid; clear smooth boundary.

C2—23 to 27 inches; yellowish brown (10YR 5/6) very fine sandy loam; common coarse prominent gray (10YR 6/1) and many coarse distinct strong brown (7.5YR 5/6) mottles; weak medium platy structure; friable; common fine vesicular pores; slightly acid; abrupt smooth boundary.

C3—27 to 30 inches; gray (5Y 5/1) silt loam; common medium prominent yellowish brown (10YR 5/4) and common coarse prominent strong brown (7.5YR 5/6) mottles; weak medium angular blocky structure; firm; slightly acid; abrupt smooth boundary.
C4—30 to 60 inches; light olive brown (2.5Y 5/4) very fine sandy loam; many coarse prominent yellowish red (5YR 5/6) and common coarse distinct light brownish gray (2.5Y 6/2) mottles; moderate very coarse prismatic structure parting to weak medium platy; firm; slightly acid.

The thickness of the solum ranges from 16 to 40 inches. Reaction ranges from strongly acid to neutral in the solum and from moderately acid to mildly alkaline in the substratum.

The A horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 to 3. It is very fine sandy loam or silt loam. The E horizon, if it occurs, has colors and textures similar to those of the A horizon. The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 2 to 4. It is silt loam, very fine sandy loam, or loamy very fine sand. The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 6. It is silt loam or very fine sandy loam.

Ridgebury Series

The Ridgebury series consists of very deep, somewhat poorly drained and poorly drained soils that formed in glacial till. These soils are on glaciated uplands. Slopes range from 0 to 8 percent.

Ridgebury soils are associated with Walpole, Woodbridge, Scarboro, and Scituate soils. They have more silt and less sand than Walpole soils. Unlike Woodbridge and Scituate soils, they have dominantly gray matrix colors. They do not have the histic epipedon that is characteristic of Scarboro soils.

Typical pedon of Ridgebury very fine sandy loam, 0 to 3 percent slopes, very stony, in the town of Nottingham, 4,000 feet at a bearing of 160 degrees from the intersection of New Hampshire Route 152 and Gebig Road:

Oi—2 to 1 inch; needle and leaf litter; abrupt smooth boundary.
Oe—1 inch to 0; partially decomposed needle and leaf litter; abrupt smooth boundary.
A—0 to 3 inches; very dark gray (10YR 3/1) very fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; about 5 percent gravel and 5 percent cobbles; very strongly acid; abrupt smooth boundary.
E1—3 to 6 inches; light gray (10YR 6/1) gravelly sandy loam; weak fine granular structure; friable; few fine roots; about 15 percent gravel and 10 percent cobbles; very strongly acid; clear smooth boundary.
E2—6 to 8 inches; light gray (2.5Y 6/2) gravelly sandy loam; few fine distinct brownish yellow (10YR 6/6) mottles; weak fine granular structure; friable; few fine roots; about 15 percent gravel and 10 percent cobbles; strongly acid; abrupt smooth boundary.
Bg—8 to 14 inches; light brownish gray (2.5Y 6/2) gravelly fine sandy loam; many medium prominent yellowish red (5YR 5/8) mottles; moderate medium granular structure; friable; few fine and medium roots; about 20 percent gravel and 5 percent cobbles; strongly acid; clear wavy boundary.
Bw—14 to 21 inches; olive brown (2.5Y 4/3) gravelly fine sandy loam; few medium distinct yellowish brown (10YR 5/6) and many coarse distinct olive gray (5Y 5/2) mottles; moderate medium subangular blocky structure; firm; few fine roots; about 15 percent gravel and 5 percent cobbles; moderately acid; clear smooth boundary.
Cd1—21 to 28 inches; olive gray (5Y 5/2) gravelly fine sandy loam; common fine distinct yellowish brown (10YR 5/6) and many coarse faint olive (5Y 5/3) mottles; moderate thick platy structure; firm; about 15 percent gravel and 5 percent cobbles; moderately acid; gradual smooth boundary.
Cd2—28 to 48 inches; gray (5Y 6/1) gravelly fine sandy loam; common fine prominent strong brown (7.5YR 5/6) and many coarse distinct olive (5Y 4/3) mottles; moderate medium platy structure; firm; about 10 percent gravel and 10 percent cobbles; moderately acid; clear smooth boundary.
Cd3—48 to 61 inches; gray (5Y 6/1) gravelly fine sandy loam; many medium prominent strong brown (7.5YR 5/6) and many coarse distinct olive (5Y 5/3) mottles; moderate medium platy structure; firm; about 10 percent gravel and 10 percent cobbles; strongly acid.

The thickness of the solum ranges from 14 to 30 inches and generally is the same as the depth to a firm substratum. The content of rock fragments ranges from 5 to 35 percent. Reaction ranges from very strongly acid to moderately acid.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is very fine sandy loam, fine sandy loam, or loam. The E horizon, if it occurs, has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. It is sandy loam or fine sandy loam. The B horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 1 to 3. It is sandy loam or fine sandy loam. The Cd horizon has hue of 2.5Y or 5Y, value of 3 to 6, and chroma of 1 to 4. It is fine sandy loam or sandy loam and is firm or very firm.

Scarboro Series

The Scarboro series consists of very deep, very poorly drained soils that formed in glaciofluvial deposits. These soils are on outwash plains, deltas, and terraces. Slopes range from 0 to 3 percent.

Scarboro soils are associated with Chocorua, Pipestone, Ossipee, Ridgebury, and Walpole soils. Unlike Chocorua and Ossipee soils, they have organic material that is less than 16 inches thick. Unlike Pipestone, Ridgebury, and Walpole soils, they have a histic epipedon.

Typical pedon of Scarboro muck, in the town of Auburn, 6,700 feet at a bearing of 147 degrees from the intersection of old New Hampshire Route 101 and the Chester turnpike:

Oa—0 to 5 inches; sapric material, black (5YR 2/1) broken face and both rubbed and unrubbed, very dark gray (5YR 3/1) pressed; about 30 percent fibers, 15 percent rubbed; weak medium granular structure; very friable; many very fine, many fine, and few medium roots; about 5 percent woody fragments; about 40 percent mineral material; very strongly acid; abrupt smooth boundary.

Oe—5 to 12 inches; hemic material, black (5YR 2/1) broken face, both rubbed and unrubbed, and pressed; about 30 percent fibers, 20 percent rubbed; moderate medium granular structure; friable; about 5 percent woody coarse fragments; about 50 percent mineral material; very strongly acid; clear smooth boundary.

Cg1—12 to 16 inches; light brownish gray (2.5Y 6/2) sandy loam; many medium distinct gray (5Y 6/1) and common medium distinct yellowish brown (10YR 5/4) mottles; massive; friable; moderately acid; gradual smooth boundary.

Cg2—16 to 43 inches; light brownish gray (2.5Y 6/2) sand; common fine distinct gray (5Y 6/1) mottles; massive; very friable; neutral; clear smooth boundary.

Cg3—43 to 60 inches; gray (N 5/0) coarse sand; massive; very friable; neutral.

Reaction ranges from very strongly acid to neutral. The content of rock fragments ranges from 0 to 10 percent in the part of the C horizon within a depth of 30 inches and from 0 to 20 percent in the part below a depth of 30 inches.

The O horizon has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 or 2. The upper part of the C horizon is neutral in hue or has hue of 10YR to 5Y. It has value of 4 to 7 and chroma of 0 to 2. It is fine sandy loam, sandy loam, loamy fine sand, loamy sand, fine sand, or sand. The lower part of the C horizon is neutral in hue or has hue of 10YR to 5Y. It has value of 5 or 6 and chroma of 0 to 3. It is loamy fine sand, loamy sand, fine sand, sand, or coarse sand.

Scio Series

The Scio series consists of very deep, moderately well drained soils that formed in lacustrine material. These soils are on terraces. Slopes range from 0 to 8 percent.

Scio soils are associated with Boxford, Raynham, and Unadilla soils. They have less clay throughout than Boxford soils. They do not have the dominantly gray matrix colors that are characteristic of Raynham soils. Unlike Unadilla soils, they have mottles with chroma of 2 or less within 24 inches of the surface.

Typical pedon of Scio very fine sandy loam, 0 to 5 percent slopes, in the town of East Kingston, 4,150 feet at a bearing of 159 degrees from the junction of New Hampshire Routes 107A and 108:

Oe—2 inches to 0; dark reddish brown (5YR 2/2) organic material; about 40 percent fibers rubbed; about 80 percent mineral material; many fine, medium, and coarse roots; abrupt smooth boundary.

Ap—0 to 8 inches; dark brown (10YR 4/3) very fine sandy loam; weak fine granular structure; friable; many fine and medium roots; very strongly acid; gradual wavy boundary.

Bw—8 to 21 inches; yellowish brown (10YR 5/6) very fine sandy loam; weak fine granular structure; friable; common fine and medium roots; very strongly acid; clear wavy boundary.

C1—21 to 30 inches; light olive brown (2.5Y 5/4) very fine sandy loam; few fine distinct light olive gray (5Y 6/2), few medium prominent red (2.5YR 4/6), and many coarse distinct yellowish brown (10YR 5/6) mottles; massive; friable; few fine roots; strongly acid; clear wavy boundary.

C2—30 to 43 inches; light olive brown (2.5Y 5/4) loamy very fine sand; few fine prominent (5YR 5/8), common medium distinct light olive gray (5Y 6/2), and many coarse distinct yellowish brown (10YR 5/6) mottles; massive; friable; strongly acid; gradual wavy boundary.

C3—43 to 77 inches; light brownish gray (2.5Y 6/2) fine sand; few fine prominent yellowish red (5YR 5/8) and common coarse distinct yellowish brown (10YR 5/6) mottles; massive; friable; strongly acid.

The thickness of the solum ranges from 20 to 48 inches. Reaction ranges from extremely acid to strongly acid to a depth of 30 inches. It is very strongly acid to moderately acid in the part of the solum below a depth

of 30 inches. It ranges from strongly acid to mildly alkaline in the substratum.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. It is very fine sandy loam or silt loam. The B horizon has hue of 10YR or 2.5Y, value of 5, and chroma of 3 to 6. It is silt loam or very fine sandy loam. The C horizon has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 2 to 4. It is silt loam, very fine sandy loam, or loamy very fine sand within 40 inches of the surface. Below a depth of 40 inches, the range includes loamy fine sand and fine sand.

Scitico Series

The Scitico series consists of very deep, poorly drained soils that formed in marine material. These soils are on marine terraces. Slopes range from 0 to 5 percent.

Scitico soils are associated with Boxford, Maybid, Raynham, and Squamscott soils. Unlike Boxford soils, they have dominantly gray matrix colors. They do not have the fluid A horizon that is characteristic of Maybid soils. They have more clay throughout than Raynham and Squamscott soils.

Typical pedon of Scitico silt loam, 0 to 5 percent slopes, in the town of Brentwood, 2,525 feet at a bearing of 227 degrees from the junction of Deer Hill Road and New Hampshire Route 111A:

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; many very fine and fine roots; strongly acid; gradual smooth boundary.

E—6 to 9 inches; dark grayish brown (2.5Y 4/2) silty clay loam; few fine distinct strong brown (7.5YR 5/6) mottles; moderate fine granular structure; friable; many very fine and fine roots; strongly acid; abrupt smooth boundary.

Bg—9 to 12 inches; olive gray (5Y 5/2) silty clay loam; many medium distinct strong brown (7.5YR 5/6) mottles; moderate fine granular structure; friable; many very fine and fine roots; strongly acid; abrupt smooth boundary.

BCg—12 to 20 inches; gray (5Y 5/1) silty clay; few fine prominent yellowish red (5YR 5/6) and few fine distinct light olive gray (5Y 6/2) mottles; moderate very coarse prismatic structure parting to moderate medium angular blocky; firm; common very fine and fine roots; greenish gray (5GY 5/1) coatings on faces of peds and few fine dark reddish brown (5YR 3/2) stains on peds; slightly acid; gradual wavy boundary.

Cg—20 to 60 inches; dark gray (5Y 4/1) silty clay; many coarse distinct yellowish brown (10YR 5/6), few medium prominent yellowish red (5YR 5/6), and few medium distinct light gray (10YR 7/2) mottles; moderate very coarse prismatic structure parting to moderate medium angular blocky and weak thin platy; firm; few very fine roots; greenish gray (5GY 5/1) silt coatings on faces of peds and few fine reddish brown (5YR 3/2) stains on peds; neutral.

The thickness of the solum ranges from 20 to 32 inches. Reaction ranges from very strongly acid to neutral in the A horizon, from strongly acid to neutral in the E and B horizons, and from moderately acid to mildly alkaline in the C horizon.

The A and E horizons are silt loam or silty clay loam. The A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 to 3. The E and B horizons have hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 1 or 2. The B horizon is silty clay loam or silty clay. The C horizon is neutral in hue or has hue of 10YR to 5Y. It has value of 3 to 6 and chroma of 0 to 2.

Scituate Series

The Scituate series consists of very deep, moderately well drained soils that formed in compact glacial till. These soils are on glacial till uplands. Slopes range from 0 to 25 percent.

Scituate soils are associated with Newfields, Montauk, Ridgebury, and Woodbridge soils. Unlike Newfields soils, they have firm consistence in the substratum. Unlike Montauk soils, they are mottled. They do not have the dominantly gray matrix colors that are characteristic of Ridgebury soils. They have more sand and less silt in the substratum than Woodbridge soils.

Typical pedon of Scituate fine sandy loam, in an area of Scituate-Newfields complex, 3 to 8 percent slopes, very stony, in the town of Candia, 9,250 feet at a bearing of 260 degrees from the junction of South Road and New Hampshire Route 27:

Ap1—0 to 4 inches; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many fine and common medium roots; about 10 percent gravel; very strongly acid; clear wavy boundary.

Ap2—4 to 8 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; friable; many fine and common medium roots; about 10 percent gravel; very strongly acid; gradual wavy boundary.

Bw—8 to 25 inches; yellowish brown (10YR 5/6) cobbly fine sandy loam; weak medium granular structure; friable; common fine and common medium roots; about 10 percent gravel, 15 percent cobbles, and 5

percent stones; very strongly acid; abrupt wavy boundary.

BC—25 to 32 inches; yellowish brown (10YR 5/4) gravelly loamy sand; many fine distinct light gray (2.5Y 7/2) and medium prominent yellowish red (5YR 5/8) mottles; weak medium platy structure; friable; few fine roots; about 15 percent gravel; very strongly acid; gradual wavy boundary.

2Cd1—32 to 47 inches; pale brown (10YR 6/3) gravelly loamy sand; common medium distinct light gray (2.5Y 7/2) and many medium faint yellowish brown (10YR 5/6) mottles; weak thick platy structure; firm; about 20 percent gravel; very strongly acid; abrupt wavy boundary.

2Cd2—47 to 60 inches; grayish brown (2.5Y 5/2) fine sandy loam; many coarse distinct light gray (10YR 7/1) and many medium prominent strong brown (7.5YR 5/6) mottles; moderate thick platy structure; very firm; about 10 percent gravel; very strongly acid.

The thickness of the solum ranges from 18 to 34 inches. The content of rock fragments ranges from 5 to 40 percent, by volume, in individual subhorizons. Reaction ranges from extremely acid to moderately acid in the surface layer and from very strongly acid to moderately acid in the subsoil and substratum.

The A horizon has hue of 10YR and value and chroma of 2 to 4. The B horizon has hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 4 to 6. It is dominantly fine sandy loam, but some pedons have a BC horizon of loamy sand or loamy fine sand. The 2Cd horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 or 3. It is loamy sand or loamy fine sand within a depth of 40 inches and loamy sand, loamy fine sand, sandy loam, or fine sandy loam below that depth. It is firm or very firm.

Squamscott Series

The Squamscott series consists of very deep, poorly drained soils that formed in sandy material over loamy sediments. These soils are on marine or lacustrine plains or terraces. Slopes range from 0 to 5 percent.

Squamscott soils are associated with Eldridge, Pipestone, Scitico, and Raynham soils. Unlike Eldridge soils, they have mottles in the subsurface layer. They have more silt and clay in the substratum than Pipestone soils. They have more sand and less silt and clay in the solum than Scitico and Raynham soils.

Typical pedon of Squamscott fine sandy loam, 0 to 5 percent slopes, in the town of Brentwood, 1,200 feet at a bearing of 185 degrees from the intersection of New Hampshire Route 101 and North Road:

Oi—3 to 2 inches; loose leaves, needles, and twigs; abrupt smooth boundary.

Oe—2 inches to 0; dark reddish brown (5YR 3/3) hemic material; about 35 percent fibers rubbed; many very fine and fine roots; extremely acid; abrupt wavy boundary.

Oa—0 to 1 inch; black (5YR 2/1) sapric material; about 10 percent fibers rubbed; many fine and common medium roots; extremely acid; abrupt wavy boundary.

A—1 to 2 inches; black (5YR 2/1) fine sandy loam; weak fine granular structure; friable; many fine, medium, and coarse roots; extremely acid; abrupt wavy boundary.

Eg—2 to 4 inches; light brownish gray (10YR 6/2) fine sandy loam; common coarse distinct grayish brown (2.5Y 5/2) and many medium distinct very dark grayish brown (10YR 3/2) mottles; weak medium platy structure; friable; common fine and medium roots; very strongly acid; abrupt wavy boundary.

Bhs—4 to 6 inches; dark reddish brown (5YR 2/2) loamy sand; many fine faint black (5YR 2/1) mottles; weak medium granular structure; very friable; slightly smeary; common fine and medium roots; random weak cementation; strongly acid; abrupt broken boundary.

Bs1—6 to 8 inches; brown (7.5YR 4/4) loamy sand; common medium distinct olive (5Y 4/6) and few coarse distinct brown (10YR 5/3) mottles; weak fine granular structure; very friable; common very fine, fine, and medium roots; random weak cementation; strongly acid; clear wavy boundary.

Bs2—8 to 12 inches; brownish yellow (10YR 6/6) loamy sand; common coarse prominent yellowish red (5YR 5/8) and common medium distinct light yellowish brown (2.5Y 6/4) mottles; weak fine granular structure; very friable; very few fine and medium roots; strongly acid; clear wavy boundary.

Bs3—12 to 19 inches; light olive brown (2.5Y 5/4) fine sand; few medium prominent yellowish red (5YR 5/8) and many coarse distinct light gray (5Y 7/2) mottles; weak medium platy structure; friable; very few fine and medium roots; light olive gray (5Y 6/2) bands of loamy fine sand; slightly acid; abrupt wavy boundary.

2C1—19 to 36 inches; gray (5Y 5/1) silt loam; few fine prominent strong brown (7.5YR 4/6) and many medium distinct light olive brown (2.5Y 5/4) mottles; massive; firm; few fine vesicular pores; neutral; gradual wavy boundary.

2C2—36 to 65 inches; light olive brown (2.5Y 5/3) silt loam; common medium distinct gray (5Y 5/1) mottles in the upper part; moderate fine angular

blocky structure; firm; dark reddish brown (5YR 3/2) stains on faces of peds; neutral.

The thickness of the solum ranges from 14 to 27 inches. The depth to a contrasting texture ranges from 17 to 38 inches. Reaction ranges from extremely acid to neutral. The acidity decreases with increasing depth.

The A horizon has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 or 2. It is fine sandy loam, sandy loam, or very fine sandy loam. The E horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. It is fine sandy loam, loamy sand, loamy fine sand, or loamy very fine sand. The B horizon has hue of 5YR to 2.5Y, value of 3 to 6, and chroma of 2 to 6. It is loamy sand, loamy fine sand, or fine sand. The C horizon, if it occurs, has hue of 2.5Y or 5Y, value of 5 to 7, and chroma of 1 to 4. It is sand, fine sand, or loamy sand. The 2C horizon has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 1 to 3. It is dominantly silt loam or silty clay loam, but many pedons have thin lenses or bands of loamy fine sand, loamy very fine sand, loamy sand, sand, or silty clay.

Udorthents

Udorthents are generally very deep, excessively drained soils in areas that have been cut, filled, or graded. Slopes range from 0 to 60 percent.

Udorthents are associated with Hinckley and Windsor soils. They do not have the natural sequence of horizons characteristic of Hinckley and Windsor soils.

A typical pedon of Udorthents cannot be given because the thickness, color, and texture of the soil layers vary considerably.

The fill and graded material extends to a depth of at least 20 inches. In areas that have been excavated, the remaining material does not have recognizable soil horizons. The texture is very gravelly coarse sand to silty clay. In places the soils have manufactured items or organic debris.

Unadilla Series

The Unadilla series consists of very deep, well drained soils that formed in wind- or water-deposited material. These soils are on terraces. Slopes range from 0 to 15 percent.

Unadilla soils are associated with Windsor and Scio soils. They have more silt and very fine sand than Windsor soils. Unlike Scio soils, they do not have mottles with chroma of 2 or less within 24 inches of the surface.

Typical pedon of Unadilla very fine sandy loam, 3 to 8 percent slopes, in the town of Brentwood, 2,600 feet at a bearing of 50 degrees from the junction of South Road and Haigh Road:

Oe—2 inches to 0; dark reddish brown (5YR 2/2), partially decomposed forest litter; many fine roots; abrupt smooth boundary.

Ap—0 to 4 inches; dark brown (10YR 3/3) very fine sandy loam; weak medium granular structure; friable; many fine roots; very strongly acid; clear wavy boundary.

Bw1—4 to 8 inches; yellowish brown (10YR 5/8) very fine sandy loam; weak fine granular structure; friable; common fine roots; very strongly acid; clear wavy boundary.

Bw2—8 to 13 inches; light olive brown (2.5Y 5/6) very fine sandy loam; weak fine granular structure; friable; many fine and medium roots; very strongly acid; clear wavy boundary.

BC—13 to 30 inches; light olive brown (2.5Y 5/4) loamy very fine sand; massive; friable; few fine and medium roots; very strongly acid; gradual wavy boundary.

2C1—30 to 48 inches; light olive brown (2.5Y 5/4) very fine sand; massive; friable; strongly acid; gradual wavy boundary.

2C2—48 to 60 inches; light olive brown (2.5Y 5/4) very fine sand; common fine distinct light gray (2.5Y 7/2) mottles; massive; friable; moderately acid.

The thickness of the solum ranges from 20 to 36 inches. The depth to contrasting sandy, loamy, or clayey material is more than 40 inches. The content of rock fragments ranges from 0 to 5 percent throughout the profile. Reaction ranges from very strongly acid to moderately acid in the solum and from strongly acid to mildly alkaline in the substratum.

The A horizon has hue of 10YR, value of 3, and chroma of 2 or 3. The B horizon has hue of 10YR or 2.5Y, value of 5, and chroma of 4 to 8. It is very fine sandy loam or loamy very fine sand. The BC horizon, if it occurs, is very fine sandy loam or loamy very fine sand. The 2C horizon has hue of 7.5YR to 5Y, value of 4 or 5, and chroma of 2 to 4. The part of this horizon within a depth of 40 inches is very fine sandy loam, loamy very fine sand, or very fine sand.

Walpole Series

The Walpole series consists of very deep, poorly drained soils that formed in glacial drift. These soils are on the lower parts of upland till plains. Slopes range from 0 to 8 percent.

Walpole soils are associated with Ridgebury, Scarboro, and Newfields soils. They have more sand and less silt than Ridgebury soils. They do not have the

histic epipedon that is characteristic of Scarboro soils. Unlike Newfields soils, they have dominantly gray matrix colors.

Typical pedon of Walpole very fine sandy loam, 3 to 8 percent slopes, very stony, in the town of Candia, 2,200 feet at a bearing of 150 degrees from the junction of Palmer Road and Chester Road:

Oe—2 inches to 0; hemic material, dark reddish brown (5YR 3/2) broken face and rubbed; about 30 percent fibers rubbed; moderate medium granular structure; many fine and medium and common coarse roots; abrupt smooth boundary.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) very fine sandy loam, gray (10YR 5/1) dry; moderate fine granular structure; very friable; many fine and medium and common coarse roots; about 5 percent gravel and 5 percent cobbles; strongly acid; abrupt smooth boundary.

Eg—4 to 7 inches; gray (5Y 5/1) very fine sandy loam; common coarse distinct dark grayish brown (10YR 4/2) and few fine distinct reddish brown (5YR 4/4) mottles; weak fine granular structure; friable; common fine and medium roots; about 5 percent gravel and 5 percent cobbles; strongly acid; abrupt wavy boundary.

Bw—7 to 16 inches; light yellowish brown (2.5Y 6/4) sandy loam; few medium prominent strong brown (7.5YR 5/6) and many coarse distinct light olive gray (5Y 6/2) mottles; weak very fine granular structure; friable; few fine roots; about 5 percent gravel and 5 percent cobbles; 4-inch lenses of loamy sand; moderately acid; gradual wavy boundary.

Cg—16 to 24 inches; light brownish gray (2.5Y 6/2) loamy sand; few medium prominent yellowish brown (10YR 5/6), few medium prominent reddish brown (5YR 5/4), and common coarse faint light olive gray (5Y 6/2) mottles; massive; friable; few fine roots; about 5 percent fine gravel; moderately acid; clear wavy boundary.

C1—24 to 35 inches; light yellowish brown (2.5Y 6/4) gravelly loamy sand; few fine prominent strong brown (7.5YR 5/6), common medium distinct yellowish brown (10YR 5/4), and common fine faint light brownish gray (2.5Y 6/2) mottles; massive; friable; about 5 percent fine gravel, 5 percent coarse gravel, and 5 percent cobbles, all or which are silt capped; neutral; clear smooth boundary.

C2—35 to 60 inches; light olive brown (2.5Y 5/4) gravelly loamy sand; few medium distinct light brownish gray (2.5Y 6/2) and few fine prominent yellowish brown (10YR 5/6) mottles; massive; friable; about 10 percent silt-capped fine gravel and 5 percent silt-capped coarse gravel; neutral.

The thickness of the solum ranges from 16 to 28 inches. The content of rock fragments ranges from 5 to 25 percent, by volume, throughout the profile. Reaction ranges from very strongly acid to neutral.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is very fine sandy loam, fine sandy loam, or sandy loam. The B horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 4. It is sandy loam or fine sandy loam. The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 to 4. It is loamy fine sand to coarse sand.

Westbrook Series

The Westbrook series consists of very deep, very poorly drained soils that formed in organic material over loamy material. These soils are in tidal marshes. Slopes are 0 to 1 percent.

Westbrook soils are associated with Ipswich, Pawcatuck, and Ossipee soils. Unlike Ipswich soils, they have organic material that is less than 51 inches thick. Unlike Pawcatuck soils, they have loamy underlying layers. Unlike Ossipee soils, they have sulfidic material.

Typical pedon of Westbrook mucky peat, in the city of Portsmouth, 1,350 feet at a bearing of 5 degrees from the Urban Forestry Center:

Oe1—0 to 5 inches; hemic material, dark reddish brown (5YR 2/2) broken face and rubbed; about 75 percent fibers, 40 percent rubbed; massive; nonsticky; many fine and medium roots; about 5 percent mineral material; moderately acid; abrupt smooth boundary.

Oe2—5 to 17 inches; hemic material, dark reddish brown (5YR 2/2) broken face, very dusky red (2.5YR 2/2) rubbed; about 75 percent fibers, 30 percent rubbed; massive; slightly sticky; common fine and medium roots; about 5 percent mineral material; slightly acid; clear smooth boundary.

Oe3—17 to 38 inches; hemic material, dark reddish brown (5YR 2/2) broken face and rubbed; about 60 percent fibers, 25 percent rubbed; massive; slightly sticky; few fine and medium roots; about 5 percent mineral material; slightly acid; abrupt smooth boundary.

C1—38 to 42 inches; very dark gray (5Y 3/1) silty clay loam; massive; slightly sticky; neutral; abrupt smooth boundary.

C2—42 to 47 inches; dark gray (N 4/0) silty clay loam;

massive; slightly sticky; neutral; abrupt smooth boundary.
C3—47 to 60 inches; dark greenish gray (5G 4/1) clay loam; massive; slightly sticky; neutral.

The thickness of the organic material ranges from 16 to 51 inches. Reaction ranges from strongly acid to mildly alkaline.

The surface and subsurface tiers have hue of 5YR to 5Y, value of 2 to 5, and chroma of 1 to 3. The surface tier is fibric or hemic. The subsurface tier is hemic or sapric. Some pedons have a bottom tier, which has characteristics similar to those of the subsurface tier.

The C horizon is neutral in hue or has hue of 10YR to 5BG. It has value of 2 to 7 and chroma of 0 to 2. It is sandy loam to clay loam.

Windsor Series

The Windsor series consists of very deep, excessively drained soils that formed in glacial outwash. These soils are on outwash plains, kames, and terraces. Slopes range from 0 to 60 percent.

Windsor soils are associated with Udorthents and with Deerfield, Unadilla, and Hinckley soils. Unlike Udorthents, they have a natural sequence of horizons. Unlike Deerfield soils, they do not have mottles with chroma of 2 or less. They have more sand and less silt than Unadilla soils and fewer rock fragments than Hinckley soils.

Typical pedon of Windsor loamy sand, 0 to 3 percent slopes, in the town of Brentwood, 750 feet at a bearing of 266 degrees from the junction of New Hampshire Route 107 and South Road:

Ap—0 to 12 inches; dark brown (10YR 3/3) loamy sand, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many fine roots; about 5 percent gravel; moderately acid; abrupt smooth boundary.
Bw1—12 to 17 inches; dark yellowish brown (10YR 4/6) loamy sand; weak fine granular structure; friable; many fine roots; about 10 percent gravel; moderately acid; abrupt wavy boundary.
Bw2—17 to 21 inches; yellowish brown (10YR 5/6) sand; massive; very friable; common fine roots; about 5 percent gravel; moderately acid; abrupt smooth boundary.
BC—21 to 25 inches; brownish yellow (10YR 6/6) sand; massive; very friable; few fine roots; moderately acid; clear smooth boundary.
C1—25 to 34 inches; brownish yellow (10YR 6/6) coarse sand; massive; very friable; stratified with sand and fine sand; moderately acid; clear smooth boundary.
C2—34 to 41 inches; yellowish brown (10YR 6/4) sand; few fine distinct strong brown (7.5YR 5/8) mottles; massive; very friable; moderately acid; abrupt smooth boundary.
C3—41 to 44 inches; yellowish brown (10YR 5/4) coarse sand; massive; very friable; moderately acid; abrupt smooth boundary.
C4—44 to 60 inches; light yellowish brown (10YR 6/4) fine sand; common coarse distinct yellowish brown (10YR 5/8) mottles; massive; friable; moderately acid.

The thickness of the solum ranges from 18 to 36 inches. The content of rock fragments ranges from 0 to 10 percent. Reaction ranges from very strongly acid to moderately acid in the solum and from very strongly acid to slightly acid in the substratum.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. It is loamy sand or loamy fine sand. The B horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8. It is dominantly loamy fine sand, loamy sand, fine sand, or sand, but some pedons have subhorizons of coarse sand. The C horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 2 to 6. It is dominantly fine sand or sand, but some pedons have subhorizons of coarse sand.

Woodbridge Series

The Woodbridge series consists of very deep, moderately well drained soils that formed in compact glacial till. These soils are on glacial till uplands. Slopes range from 0 to 15 percent.

Woodbridge soils are associated with Paxton, Scituate, and Ridgebury soils. Unlike Paxton soils, they have mottles with chroma of 2 or less within 24 inches of the surface. They have less sand and more silt in the substratum than Scituate soils. They do not have the dominantly gray matrix colors that are characteristic of Ridgebury soils.

Typical pedon of Woodbridge fine sandy loam, 3 to 8 percent slopes, in the town of Kensington, 1,500 feet south from a point on New Hampshire Route 107 that is 1,700 feet west of the junction of New Hampshire Route 107 and Highland Road:

Ap—0 to 8 inches; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine roots; about 10 percent gravel; very strongly acid; abrupt wavy boundary.
Bw1—8 to 13 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; friable;

common fine roots; about 10 percent gravel; very strongly acid; clear wavy boundary.

Bw2—13 to 17 inches; yellowish brown (10YR 5/4) fine sandy loam; common medium distinct strong brown (7.5YR 5/6) and few fine distinct pale brown (10YR 6/3) mottles; weak fine granular structure; friable; few fine roots; about 5 percent gravel; strongly acid; clear wavy boundary.

BC—17 to 22 inches; dark yellowish brown (10YR 4/4) fine sandy loam; common fine distinct yellowish red (5YR 4/6) and common medium faint pale brown (10YR 6/3) mottles; weak medium platy structure; firm; few fine roots; about 10 percent gravel; strongly acid; clear wavy boundary.

Cd—22 to 60 inches; light yellowish brown (2.5Y 6/4) fine sandy loam; many medium distinct strong brown (7.5YR 5/6) and common medium distinct grayish brown (2.5Y 5/2) mottles; massive; firm; about 10 percent gravel; strongly acid.

The thickness of the solum ranges from 18 to 40 inches and typically is the same as the depth to a dense substratum. The content of rock fragments ranges, by volume, from 5 to 15 percent in the solum and from 5 to 35 percent in individual subhorizons of the substratum. Reaction ranges from very strongly acid to moderately acid.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 to 3. The B horizon has hue of 7.5YR to 2.5Y, value of 3 to 6, and chroma of 4 to 8. The Cd horizon has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 3 or 4. It is firm or very firm.

Formation of the Soils

This section relates the major factors of soil formation to the soils in Rockingham County. It also describes the geology of the county.

Factors of Soil Formation

Soils form through the interaction of five major factors *(8)*. These factors are time, climate, relief, parent material, and biological forces. The relative contribution of each of the factors determines the kind of soil. If all of the factors are the same from area to area, the soils in each of the areas will be the same. If any of the factors are different, the soils will be different. The most significant soil-forming factors in Rockingham County are relief and parent material. These two factors vary widely within the county. The effects of time, climate, and biological forces are relatively uniform throughout the county.

Time

Time is needed for climate and biological forces to act on the parent material. Generally, the age of the parent material is closely related to the kind of parent material. The age of the parent material is about the same throughout most areas of Rockingham County, except for areas of Pootatuck and Lim soils, which formed in recent alluvial material.

Climate

Climate affects the kind of biological activity in and on the soil. Temperature and precipitation are relatively uniform throughout Rockingham County. As a result, climate has not significantly differentiated the soils within the county.

Relief

Relief affects soil formation mainly through its effect on the movement of water on and in the soil. It also affects the microclimate and the biological activity in the soil. The soils in the lower topographic positions receive runoff from the higher adjacent areas in addition to the precipitation that falls on all of the soils. If the soils in the lower positions formed in silty or clayey marine sediments, long-term wetness can be expected. If the soils in the higher positions formed in sandy and gravelly outwash, droughty conditions can be expected.

Parent Material

The soils in Rockingham County formed in several kinds of parent material. Most of the soils formed in glacial till, but many formed in glacial outwash, marine or lacustrine sediments, or organic material. Soils that formed in similar kinds of parent material can be differentiated from one another by other factors, such as relief. For example, Paxton, Woodbridge, and Ridgebury soils all formed in glacial till, but they differ from one another because Paxton soils are in the higher topographic positions, Woodbridge soils are in intermediate positions, and Ridgebury soils are in the lower positions.

Biological Forces

Biological forces generally have had little effect on the soils of Rockingham County. The vegetation that grows on the soils, the micro-organisms that live in the soils, and the animals that live on and in the soils are relatively uniform throughout the county. Differences in vegetation from place to place are largely the result of variations in the kind of parent material or in relief. In areas of Udorthents, human activities have modified the soils. These activities include cutting, filling, and grading.

Bedrock Geology

D.B. Champeon, geologist, New England Water Resources Planning Staff, prepared this section and the section "Surficial Geology."

Several hundred million years of the earth's geologic history are represented by the many bedrock units evident in Rockingham County. Muddy, sandy, and limy sediments and chemical precipitates were deposited in shallow, subsiding ocean basins, where they eventually formed impure sedimentary rocks, such as pelite, various types of sandstone, and carbonate rocks. Other rocks were formed from ash and larger fragments of volcanic origin.

Determining the exact age of the rocks is difficult because they were deformed, folded, and subject to extreme temperatures and the pressures associated with major movements of the earth's crust and episodes of mountain-building, the most intense of which was the Acadian Revolution of the Devonian age. New rock types, such as phyllite, schist, gneiss, quartzite, and amphibolite, formed during this process of change, which is called metamorphism. Many features within the sedimentary rocks, including animal fossils, which generally are used in ascertaining relative ages, were destroyed during this process.

The oldest rocks in the county are in a 2- to 4-mile band along the coast from Hampton to Portsmouth. The Rye Formation, which is of Ordovician age or older, consists of a lower, lighter colored metasedimentary member (schist, quartzite, and amphibolite) and an upper, darker, metavolcanic member (schist, gneiss, quartzite, and amphibolite).

The Kittery, Eliot, and Berwick Formations are probably of Middle Silurian age. The Kittery Formation is primarily an impure quartzite, but it contains some slate, phyllite, schist, and granofels. It crops out in a 2- to 3-mile band west of the Rye Formation and in a 1- to 2-mile band extending from Exeter to the western shore of Great Bay.

The Eliot Formation unconformably overlies the Kittery Formation. It consists of slate, phyllite, schist, and quartzite. It crops out in two 2- to 3-mile bands. One of these bands extends from an area directly east of Exeter through Great Bay to Newington. The other extends north from Brentwood to the county line.

The Berwick Formation overlies the Eliot Formation. It occurs as a 4- to 7-mile band extending from Massabesic Lake to Fremont and then northeast to Nottingham. It consists mainly of schist but has lesser amounts of calc-silicate rocks.

The Kittery, Eliot, and Berwick Formations have not been mapped separately in all parts of the county. Collectively, they are called the Merrimack Group. They make up practically all of the bedrock in the area south of a line from Auburn through Fremont and Brentwood to Kensington.

The Littleton Formation, which is of Lower Devonian age, is in a small area in the extreme northwest part of the county. It is the youngest rock of metasedimentary origin in southeastern New Hampshire. It consists primarily of schist.

Several times, probably during the Late Devonian age, molten rock from deep within the earth pushed and melted its way into the existing rocks, where it cooled and solidified, forming large bodies of igneous rocks called plutons. Many smaller, scattered bodies of similar rocks also are evident. All of these rocks belong to the Hillsboro plutonic series.

Newburyport quartz diorite and a related porphyritic quartz monzonite are in the extreme southeast part of the county, south of Hampton Beach and Seabrook. Exeter diorite occurs as a 2- to 4-mile band of diorite, quartz diorite, gabbro, and quartz monzonite extending from Exeter to Newmarket. Granite and granodiorite of the Fitchburg pluton make up the largest body of igneous rocks in the county. They are northwest of a line from Massabesic Lake to Nottingham.

Mount Pawtuckaway is made up of monzonite, monzodiorite, and diorite related to a later intrusion of igneous rocks, probably associated with the emplacement of the White Mountain plutonic series, which is likely of Mississippian age.

Surficial Geology

The slow process of erosion removed a significant amount of the bedrock in the survey area for a period of more than 300 million years. The present-day landscape, however, is a result mainly of the events of the Pleistocene, which began about 1.6 million years ago. Continental ice sheets advanced and retreated over the area probably as many as four times during that epoch, but the remaining evidence generally is only of the last major glaciation, known as the Wisconsinan stage.

The Laurentide ice sheet, of Late Wisconsinan age, had spread southeast to its maximum extent on the continental shelf by about 18,000 years ago. As it advanced, the glacier ground up the rocks beneath it and deposited newly eroded material under the ice sheet as a compact blanket of glacial till, a mixture of rock fragments ranging from clay-sized material to boulders. Paxton and Woodbridge soils are examples of soils that formed in this dense basal till, which is on uplands throughout the county. An older till from the Illinoian stage underlies this till in some of the drumlins in the county.

The sheer weight of a massive sheet of ice thousands of feet thick depressed the land surface significantly, but the extent of this depression is not known. The great quantities of moisture locked up in the glacial ice resulted in a general worldwide lowering of sea level by about 300 to 350 feet. Eventually, the climate warmed and the rate of melting exceeded the rate of advance, resulting in a net retreat of the glacial margin. By about 14,000 years ago, the ice margin had receded to about the position of the present coastline. In the early stages deglaciation resulted from the removal of active ice by calving in response to marine

transgression. The large amounts of meltwater carried and eventually deposited sand and gravel as flat-topped, marine ice-contact deltas in areas where the glacier was grounded on the shore. Hoosic soils are an example of soils that formed on these marine deltas.

During the later stages the sandy material and pebbles were deposited as terraces, kames, deltas, and eskers in contact with the stagnating ice remaining in the valleys. In some areas sand was deposited in front of the ice margin as outwash plains. Hinckley and Windsor soils are examples of soils that formed in areas of ice-contact deposits and outwash plains.

Lowlands and valleys were flooded by rising seas until about 11,000 years ago. The sea level was as much as 230 feet higher than the current level. Large quantities of clay- and silt-sized sediments were deposited in these low areas, forming the familiar "blue clays" most prevalent in the coastal zone and major river valleys. Maybid and Scitico soils are examples of soils that formed in these marine sediments.

When the quantity of meltwater decreased, the eroded material in the ice that could not be transported remained to form a thin, firm cover of till on some of the ridges and slopes in the uplands. Hollis and Newfields soils are examples of soils that formed in this ablation till.

As the ice melted and decreased in weight, the land began to rebound and emerge from the sea. Rebound began about 13,000 years ago and continued until about 10,000 years ago, when the sea level was more than 100 feet below the present level. Since that time a slow submergence has resulted in the present sea level. During the period of emergence, many lakes, ponds, and other wetlands formed. Some of these still remain, but others have been filled with lacustrine sediments or organic material. Raynham soils are an example of soils that formed in the lake sediments, and Greenwood soils are an example of soils that formed in the organic material.

Erosion, sedimentation, and landscape alteration are ongoing processes. Soils continue to form in "modern" (postglacial) material. Pootatuck and other alluvial soils formed in river and stream bottom deposits. Ipswich and Pawcatuck soils formed in organic material in tidal marshes. Udorthents are in areas where the landscape has been altered by cutting, filling, and grading.

Survey Procedures

The soil survey of Rockingham County was made through field examination of soil-landscape relationships, plotting of the resulting map units, testing of the units by transects and statistical examination, and laboratory analyses of selected representative pedons to ensure that the soils are properly classified.

Base maps used in the field consisted of USGS topographic quadrangles at scales of 1:24,000 and 1:62,500; aerial photography taken leaf-on in 1952 at a scale of 1:15,840 and leaf-off in 1974 at a scale of 1:20,000; and quad-centered photography at a scale of 1:20,000. Stereo coverage was available for all of the aerial photography, but the quad-centered photography was available for only a small part of the county. During the early part of the survey, field mapping was prepared on the 1952 photographs. This work included the towns of Rye, Windham, and Hampstead. It also included areas of tidal marsh that were mapped as a special project *(4)* and incorporated in this report. The rest of the survey area was mapped on the 1974 photographs. During the last few years of the survey, however, the work prepared on the aerial photographs was transferred to photobase atlas sheets at the end of each field season.

Several people contributed to the field mapping, including the SCS survey party, which generally consisted of two members; SCS soil scientists on detail from other survey areas; soil scientists from the Rockingham County Conservation District; a private contract mapper; and special project mappers from the University of New Hampshire. Other work, such as profile descriptions, transects, and sampling, was done by the survey party with the help of volunteers from the University of New Hampshire.

Field examinations were made on a landform basis to test soil-landscape relationships. Generally, traverses were made at intervals close enough for the soil scientists to cross each map unit delineation at least once. In many areas the soil scientists crossed the delineations two or three times. Traverses on the larger landforms, which are characterized by larger map unit delineations, were more widely spaced than traverses on the smaller landforms. Sufficient observations were made, however, to ensure that areas about 4 acres or more in size were identified and mapped. Direct observations of the soils were made to confirm both taxonomic classification and geomorphic relationships.

The quality, consistency, and naming of some map units were tested by statistical evaluation of map unit composition *(3)*. The soil scientists selected several delineations of each map unit and randomly conducted one or two transects. Depending on the size of the delineation, 4 to 12 observations were made for each transect. Classification and phase data were collected for each observation so that the composition of the major soils in the units and of the similar and dissimilar included soils could be determined at the conclusion of data collection. For most of the map units that were tested, sufficient transects were conducted to ensure at a 90 percent confidence level that the composition is within 10 percent of the percentages determined for the units. Most of the tested map units are multitaxa units named according to both naming conventions *(17)* and statistical evaluation of composition. The Chatfield-Hollis-Canton map units and the map unit Greenwood and Ossipee soils, ponded, are examples of units that were tested by statistical evaluation and named according to the results of that evaluation *(7)*.

The classification of some pedons was tested by physical and chemical analyses performed by the Soil Survey Laboratory in Lincoln, Nebraska, and by a laboratory at the University of New Hampshire *(13)*. Analyses of reference samples sent to these labs confirmed that Eldridge and Squamscott soils are properly classified as "sandy over loamy" and that Scarboro soils have a histic epipedon.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

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

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

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.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on the 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. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of

exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil. A soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, phyllite, shale, slate, limestone, or schist as much as 6 inches along the longest axis. A single piece is called a channer.

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.

Clayey soil. Sandy clay, silty clay, or clay.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax vegetation. 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 fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Colluvium. Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil 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 are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

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. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Fluid.—When wet, flows between fingers under pressure.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

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.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that

has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

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.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

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, for example, fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Esker (geology). A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.

Excess fines (in tables). Excess silt and clay in the soil.

The soil is not a source of gravel or sand for construction purposes.

Excess salts (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

Excess sulfur (in tables). Excessive amount of sulfur in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grains are grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

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.*

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist, 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant not a grass or a sedge.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glacial drift (geology). Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash (geology). Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till (geology). Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits (geology). Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

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 up to 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 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 (geology). Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

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.

Hemic soil material (mucky peat). Organic soil

material intermediate in degree of decomposition between the less decomposed fibric and the more decomposed sapric material.

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. The major horizons are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, any plowed or disturbed surface layer.

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 O, A, or E horizon. The B horizon is in part a layer of transition from the overlying horizon 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) granular, 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 horizon. 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.—Hard, consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon but 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-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Irrigation. Application of water to soils to assist in production of crops. Some of the methods of irrigation are:

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

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.

Kame (geology). An irregular, short ridge or hill of stratified glacial drift.

Lacustrine deposit (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

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.

Loamy soil. Sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

Low strength. The soil is not strong enough to support loads.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moraine (geology). An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Muck. Dark colored, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

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.

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it is generally low in relief.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

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 downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil, adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

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.

Poor filter (in tables). Because of rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

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.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

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.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Extremely acid	below 4.5
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
Mildly 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

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rippable. Bedrock or hardpan can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 drawbar horsepower rating.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

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.

Salty water (in tables). Water that is too salty for consumption by livestock.

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 soil. Sand or loamy sand.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saprolite (soil science). Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are

almost alike, except for differences in texture of the surface layer or of the substratum. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell. 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.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

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 feet.

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 (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the substratum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to soil blowing 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 soil blowing and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Breaking up a compact subsoil by pulling a special chisel through the soil.

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.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from about 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. It includes all subdivisions of these horizons.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till plain. An extensive flat to undulating area underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer of 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.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1963-81 at Epping, New Hampshire)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	32.6	10.4	21.5	57	-19	6	3.41	1.31	5.17	6	16.4
February	35.3	12.7	24.0	56	-16	0	3.51	1.66	5.09	6	17.3
March	44.7	23.2	34.0	72	-4	31	3.38	2.11	4.52	7	11.4
April	57.0	31.8	44.4	83	14	159	3.54	2.20	4.75	7	2.3
May	68.9	41.9	55.4	91	24	477	3.45	1.91	4.80	7	.0
June	77.8	51.6	64.7	94	33	741	3.47	1.68	5.00	7	.0
July	82.6	56.8	69.7	95	40	921	3.27	1.70	4.64	7	.0
August	80.4	55.0	67.7	94	36	859	3.15	2.02	4.18	6	.0
September	72.2	46.2	59.2	92	26	576	3.49	1.39	5.25	6	.0
October	61.4	35.8	48.6	82	16	275	3.60	2.31	4.76	6	.1
November	48.4	28.3	38.4	70	8	77	4.35	2.40	6.07	8	3.5
December	36.0	16.5	26.3	61	-14	9	4.69	2.34	6.73	7	18.3
Yearly:											
Average	58.1	34.2	46.2	---	---	---	---	---	---	---	---
Extreme	---	---	---	96	-21	---	---	---	---	---	---
Total	---	---	---	---	---	4,131	43.31	36.73	49.88	80	69.3

* 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 1963-81 at Epping, New Hampshire)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 2	May 23	June 1
2 years in 10 later than--	Apr. 28	May 18	May 27
5 years in 10 later than--	Apr. 21	May 7	May 18
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 2	Sept. 18	Sept. 8
2 years in 10 earlier than--	Oct. 7	Sept. 23	Sept. 12
5 years in 10 earlier than--	Oct. 16	Oct. 2	Sept. 20

TABLE 3.--GROWING SEASON

(Recorded in the period 1963-81 at Epping, New Hampshire)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	159	126	111
8 years in 10	165	133	115
5 years in 10	177	147	124
2 years in 10	189	161	133
1 year in 10	195	169	138

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
12A	Hinckley fine sandy loam, 0 to 3 percent slopes	967	0.2
12B	Hinckley fine sandy loam, 3 to 8 percent slopes	5,404	1.2
12C	Hinckley fine sandy loam, 8 to 15 percent slopes	2,855	0.6
12E	Hinckley fine sandy loam, 15 to 60 percent slopes	460	0.1
26A	Windsor loamy sand, 0 to 3 percent slopes	3,535	0.8
26B	Windsor loamy sand, 3 to 8 percent slopes	4,829	1.1
26C	Windsor loamy sand, 8 to 15 percent slopes	729	0.2
26E	Windsor loamy sand, 15 to 60 percent slopes	627	0.1
29A	Woodbridge fine sandy loam, 0 to 3 percent slopes	451	0.1
29B	Woodbridge fine sandy loam, 3 to 8 percent slopes	2,317	0.5
30A	Unadilla very fine sandy loam, 0 to 3 percent slopes	337	0.1
30B	Unadilla very fine sandy loam, 3 to 8 percent slopes	489	0.1
32A	Boxford silt loam, 0 to 3 percent slopes	2,869	0.6
32B	Boxford silt loam, 3 to 8 percent slopes	5,473	1.2
32C	Boxford silt loam, 8 to 15 percent slopes	405	0.1
33A	Scitico silt loam, 0 to 5 percent slopes	12,381	3.0
38A	Eldridge fine sandy loam, 0 to 3 percent slopes	3,063	0.7
38B	Eldridge fine sandy loam, 3 to 8 percent slopes	5,847	1.3
42B	Canton gravelly fine sandy loam, 3 to 8 percent slopes	7,954	1.8
42C	Canton gravelly fine sandy loam, 8 to 15 percent slopes	4,315	1.0
42D	Canton gravelly fine sandy loam, 15 to 25 percent slopes	556	0.1
43B	Canton gravelly fine sandy loam, 3 to 8 percent slopes, very stony	6,473	1.5
43C	Canton gravelly fine sandy loam, 8 to 15 percent slopes, very stony	17,784	4.0
43D	Canton gravelly fine sandy loam, 15 to 25 percent slopes, very stony	3,372	0.8
43E	Canton gravelly fine sandy loam, 25 to 35 percent slopes, very stony	562	0.1
44B	Montauk fine sandy loam, 3 to 8 percent slopes	4,633	1.0
44C	Montauk fine sandy loam, 8 to 15 percent slopes	3,965	0.9
45B	Montauk fine sandy loam, 3 to 8 percent slopes, very stony	3,900	0.9
45C	Montauk fine sandy loam, 8 to 15 percent slopes, very stony	6,665	1.5
45D	Montauk fine sandy loam, 15 to 25 percent slopes, very stony	2,942	0.7
62B	Charlton fine sandy loam, 3 to 8 percent slopes	2,559	0.6
62C	Charlton fine sandy loam, 8 to 15 percent slopes	1,106	0.3
63B	Charlton fine sandy loam, 3 to 8 percent slopes, very stony	1,052	0.2
63C	Charlton fine sandy loam, 8 to 15 percent slopes, very stony	2,400	0.5
63D	Charlton fine sandy loam, 15 to 25 percent slopes, very stony	265	0.1
66B	Paxton fine sandy loam, 3 to 8 percent slopes	5,115	1.2
66C	Paxton fine sandy loam, 8 to 15 percent slopes	3,308	0.7
66D	Paxton fine sandy loam, 15 to 25 percent slopes	1,273	0.3
67B	Paxton fine sandy loam, 3 to 8 percent slopes, very stony	1,359	0.3
67C	Paxton fine sandy loam, 8 to 15 percent slopes, very stony	3,504	0.8
67D	Paxton fine sandy loam, 15 to 25 percent slopes, very stony	3,207	0.7
67E	Paxton fine sandy loam, 25 to 35 percent slopes, very stony	720	0.2
97	Greenwood and Ossipee soils, ponded	8,755	2.0
115	Scarboro muck	1,042	0.2
125	Scarboro muck, very stony	825	0.2
129B	Woodbridge fine sandy loam, 3 to 8 percent slopes, very stony	2,600	0.6
129C	Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony	1,046	0.2
134	Maybid silt loam	3,531	0.8
140B	Chatfield-Hollis-Canton complex, 3 to 8 percent slopes, very stony	31,158	7.0
140C	Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, very stony	67,480	15.3
140D	Chatfield-Hollis-Canton complex, 15 to 35 percent slopes, very stony	22,368	5.1
141E	Hollis-Rock outcrop-Chatfield complex, 15 to 60 percent slopes	3,498	0.8
295	Greenwood mucky peat	14,182	3.2
298	Pits, sand and gravel	3,763	0.9
299	Udorthents, smoothed	5,025	1.1
305	Lim-Pootatuck complex	1,761	0.4
313A	Deerfield fine sandy loam, 0 to 3 percent slopes	4,514	1.0
313B	Deerfield fine sandy loam, 3 to 8 percent slopes	3,159	0.7
314A	Pipestone sand, 0 to 5 percent slopes	5,183	1.2
343C	Canton gravelly fine sandy loam, 8 to 15 percent slopes, extremely bouldery	3,274	0.7
343D	Canton gravelly fine sandy loam, 15 to 35 percent slopes, extremely bouldery	2,419	0.5
395	Chocorua mucky peat	4,981	1.1
397	Ipswich mucky peat	3,477	0.8
446A	Scituate-Newfields complex, 0 to 3 percent slopes	1,252	0.3
446B	Scituate-Newfields complex, 3 to 8 percent slopes	5,505	1.2

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
447A	Scituate-Newfields complex, 0 to 3 percent slopes, very stony	2,872	0.6
447B	Scituate-Newfields complex, 3 to 8 percent slopes, very stony	17,948	4.1
447C	Scituate-Newfields complex, 8 to 15 percent slopes, very stony	2,425	0.5
460B	Pennichuck channery very fine sandy loam, 3 to 8 percent slopes	1,643	0.4
460C	Pennichuck channery very fine sandy loam, 8 to 15 percent slopes	960	0.2
495	Ossipee mucky peat	7,117	1.6
497	Pawcatuck mucky peat	578	0.2
510A	Hoosic gravelly fine sandy loam, 0 to 3 percent slopes	2,598	0.6
510B	Hoosic gravelly fine sandy loam, 3 to 8 percent slopes	8,099	1.8
510C	Hoosic gravelly fine sandy loam, 8 to 15 percent slopes	1,878	0.4
510D	Hoosic gravelly fine sandy loam, 15 to 35 percent slopes	266	0.1
531B	Scio very fine sandy loam, 0 to 5 percent slopes	756	0.2
533	Raynham silt loam	789	0.2
538A	Squamscott fine sandy loam, 0 to 5 percent slopes	8,371	1.9
546A	Walpole very fine sandy loam, 0 to 5 percent slopes	898	0.2
547A	Walpole very fine sandy loam, 0 to 3 percent slopes, very stony	3,877	0.9
547B	Walpole very fine sandy loam, 3 to 8 percent slopes, very stony	9,502	2.1
597	Westbrook mucky peat	230	0.1
599	Urban land-Hoosic complex, 3 to 15 percent slopes	1,707	0.4
656A	Ridgebury very fine sandy loam, 0 to 5 percent slopes	796	0.2
657A	Ridgebury very fine sandy loam, 0 to 3 percent slopes, very stony	2,335	0.5
657B	Ridgebury very fine sandy loam, 3 to 8 percent slopes, very stony	4,123	0.9
699	Urban land	2,160	0.5
799	Urban land-Canton complex, 3 to 15 percent slopes	3,667	0.8
997	Ipswich mucky peat, low salt	275	0.1
	Water	13,289	3.0
	Total	441,984	100.0

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS

(Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Soil name and map symbol	Land capability	Grass-legume hay	Corn silage	Apples	Strawberries	Pumpkins
		Tons	Tons	Bu	Crates	Cwt
12A, 12B---------- Hinckley	IIIs	2.0	12	400	---	120
12C---------- Hinckley	IVs	---	---	400	---	---
12E---------- Hinckley	VIIs	---	---	---	---	---
26A, 26B---------- Windsor	IIIs	2.5	14	400	275	120
26C---------- Windsor	IVs	2.5	12	400	---	---
26E---------- Windsor	VIIs	---	---	---	---	---
29A---------- Woodbridge	IIw	4.0	24	400	140	200
29B---------- Woodbridge	IIe	4.0	24	400	140	200
30A---------- Unadilla	I	3.5	24	---	275	---
30B---------- Unadilla	IIe	3.5	24	---	275	---
32A---------- Boxford	IIw	3.0	22	---	---	---
32B---------- Boxford	IIe	3.5	22	---	---	---
32C---------- Boxford	IIIe	3.5	20	---	---	---
33A---------- Scitico	IVw	3.5	20	---	---	---
38A, 38B---------- Eldridge	IIw	3.5	16	---	250	240
42B---------- Canton	IIe	4.5	22	500	225	160
42C---------- Canton	IIIe	4.0	20	500	---	---
42D---------- Canton	IVe	3.5	18	---	---	---
43B, 43C, 43D---------- Canton	VIs	---	---	---	---	---
43E---------- Canton	VIIs	---	---	---	---	---

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS--Continued

Soil name and map symbol	Land capability	Grass-legume hay	Corn silage	Apples	Strawberries	Pumpkins
		Tons	Tons	Bu	Crates	Cwt
44B---------- Montauk	IIe	3.5	22	600	195	200
44C---------- Montauk	IIIe	3.5	20	600	---	---
45B, 45C, 45D---------- Montauk	VIs	---	---	---	---	---
62B---------- Charlton	IIe	4.5	24	600	195	180
62C---------- Charlton	IIIe	4.0	22	600	---	---
63B, 63C, 63D---------- Charlton	VIs	---	---	---	---	---
66B---------- Paxton	IIe	4.0	24	600	165	200
66C---------- Paxton	IIIe	4.0	22	600	---	---
66D---------- Paxton	IVe	3.5	20	---	---	---
67B, 67C, 67D---------- Paxton	VIs	---	---	---	---	---
67E---------- Paxton	VIIs	---	---	---	---	---
97---------- Greenwood and Ossipee	VIIIw	---	---	---	---	---
115---------- Scarboro	Vw	---	---	---	---	---
125---------- Scarboro	VIIs	---	---	---	---	---
129B, 129C---------- Woodbridge	VIs	---	---	---	---	---
134---------- Maybid	VIw	---	---	---	---	---
140B, 140C, 140D. Chatfield-Hollis-Canton						
141E. Hollis-Rock outcrop-Chatfield						
295---------- Greenwood	VIIw	---	---	---	---	---
298*. Pits						

See footnote at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS--Continued

Soil name and map symbol	Land capability	Grass-legume hay	Corn silage	Apples	Strawberries	Pumpkins
		Tons	Tons	Bu	Crates	Cwt
299. Udorthents						
305---------- Lim-Pootatuck	---	3.7	---	---	---	---
313A, 313B---------- Deerfield	IIIw	3.0	16	---	225	---
314A---------- Pipestone	IVw	3.0	12	---	---	---
343C, 343D---------- Canton	VIIs	---	---	---	---	---
395---------- Chocorua	VIIIw	---	---	---	---	---
397---------- Ipswich	VIIIw	---	---	---	---	---
446A---------- Scituate-Newfields	---	3.7	23	400	---	200
446B---------- Scituate-Newfields	---	3.7	22	400	---	200
447A, 447B, 447C. Scituate-Newfields						
460B---------- Pennichuck	IIe	3.5	18	---	---	---
460C---------- Pennichuck	IIIe	3.5	17	---	---	---
495---------- Ossipee	VIIIw	---	---	---	---	---
497---------- Pawcatuck	VIIIw	---	---	---	---	---
510A, 510B---------- Hoosic	IIIs	3.0	18	500	250	160
510C---------- Hoosic	IIIe	3.0	15	500	---	---
510D---------- Hoosic	IVe	2.5	---	---	---	---
531B---------- Scio	IIe	3.5	22	---	---	---
533---------- Raynham	IVw	---	---	---	---	---
538A---------- Squamscott	IVw	---	---	---	---	---

See footnote at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS--Continued

Soil name and map symbol	Land capability	Grass-legume hay	Corn silage	Apples	Strawberries	Pumpkins
		Tons	Tons	Bu	Crates	Cwt
546A---------- Walpole	IVw	---	---	---	---	---
547A, 547B---------- Walpole	VIs	---	---	---	---	---
597---------- Westbrook	VIIIw	---	---	---	---	---
599*. Urban land-Hoosic						
656A---------- Ridgebury	IIIw	3.5	16	---	---	---
657A, 657B---------- Ridgebury	VIIs	---	---	---	---	---
699*. Urban land						
799*. Urban land-Canton						
997---------- Ipswich	VIIIw	---	---	---	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

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)

Map symbol	Soil name
29A	Woodbridge fine sandy loam, 0 to 3 percent slopes
29B	Woodbridge fine sandy loam, 3 to 8 percent slopes
30A	Unadilla very fine sandy loam, 0 to 3 percent slopes
32A	Boxford silt loam, 0 to 3 percent slopes
38A	Eldridge fine sandy loam, 0 to 3 percent slopes
38B	Eldridge fine sandy loam, 3 to 8 percent slopes
44B	Montauk fine sandy loam, 3 to 8 percent slopes
62B	Charlton fine sandy loam, 3 to 8 percent slopes
66B	Paxton fine sandy loam, 3 to 8 percent slopes
446A	Scituate-Newfields complex, 0 to 3 percent slopes
446B	Scituate-Newfields complex, 3 to 8 percent slopes
460B	Pennichuck channery very fine sandy loam, 3 to 8 percent slopes

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available)

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	
12A, 12B, 12C---Hinckley	7S	Slight	Slight	Severe	Slight	Slight	Eastern white pine Northern red oak Red pine	60 49 58	Eastern white pine.
12E---Hinckley	7R	Severe	Severe	Severe	Slight	Slight	Eastern white pine Northern red oak Red pine	60 49 58	Eastern white pine.
26A, 26B, 26C---Windsor	7S	Slight	Slight	Severe	Slight	Slight	Eastern white pine Northern red oak Red pine	57 52 61	Eastern white pine, red pine, white spruce.
26E---Windsor	7R	Severe	Severe	Severe	Slight	Slight	Eastern white pine Northern red oak Red pine	57 52 61	Eastern white pine, red pine, white spruce.
29A, 29B---Woodbridge	8A	Slight	Slight	Slight	Moderate	Moderate	Northern red oak Eastern white pine Red pine Red spruce Sugar maple	72 67 65 50 65	Eastern white pine, European larch.
30A, 30B---Unadilla	3A	Slight	Slight	Slight	Slight	Moderate	Sugar maple Eastern white pine Northern red oak Black cherry White ash	70 85 80 80 95	Eastern white pine, Norway spruce, black cherry, European larch, red pine, white spruce.
32A, 32B, 32C---Boxford	8A	Slight	Slight	Slight	Slight	Moderate	Eastern white pine Northern red oak Paper birch Eastern hemlock	65 55 --- ---	Eastern white pine, white spruce.
33A---Scitico	5W	Slight	Severe	Severe	Severe	---	Red maple Eastern white pine White ash	55 57 ---	Eastern white pine, white spruce.
38A, 38B---Eldridge	8A	Slight	Slight	Moderate	Slight	---	Eastern white pine Northern red oak	65 60	Eastern white pine, red pine, white spruce, black spruce, balsam fir.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	
42B, 42C---------- Canton	7A	Slight	Slight	Slight	Slight	---	Eastern white pine-- Northern red oak----	58 52	Eastern white pine, white spruce.
42D---------- Canton	7R	Slight	Moderate	Slight	Slight	---	Eastern white pine-- Northern red oak----	58 52	Eastern white pine, white spruce.
43B, 43C---------- Canton	7A	Slight	Slight	Slight	Slight	Slight	Eastern white pine-- Northern red oak----	58 52	Eastern white pine, white spruce.
43D, 43E---------- Canton	7R	Slight	Moderate	Slight	Slight	Slight	Eastern white pine-- Northern red oak----	58 52	Eastern white pine, white spruce.
44B, 44C---------- Montauk	3A	Slight	Slight	Slight	Slight	---	Sugar maple--------- Northern red oak---- Red pine---------- Eastern white pine--	65 70 75 75	Norway spruce, white spruce, European larch.
45B, 45C---------- Montauk	3A	Slight	Slight	Slight	Slight	---	Sugar maple--------- Northern red oak---- Red pine---------- Eastern white pine--	65 70 75 ---	Norway spruce, white spruce, red pine.
45D---------- Montauk	3R	Slight	Moderate	Slight	Slight	---	Sugar maple--------- Northern red oak---- Red pine---------- Eastern white pine--	65 70 75 ---	Norway spruce, white spruce, red pine.
62B, 62C, 63B, 63C- Charlton	3A	Slight	Slight	Slight	Slight	Slight	Northern red oak---- Eastern white pine-- Red pine---------- Red maple---------- Shagbark hickory---- Sugar maple---------	65 65 70 55 --- 55	Eastern white pine, red pine, white spruce, eastern hemlock, European larch.
63D---------- Charlton	3R	Moderate	Moderate	Slight	Slight	Slight	Northern red oak---- Eastern white pine-- Red pine---------- Red maple---------- Shagbark hickory---- Sugar maple---------	65 65 70 55 --- 55	Eastern white pine, red pine, white spruce, eastern hemlock, European larch.
66B, 66C---------- Paxton	3A	Slight	Slight	Moderate	Slight	Moderate	Northern red oak---- Red pine---------- Eastern white pine-- Sugar maple---------	65 67 66 75	Red pine, eastern white pine, Norway spruce, European larch.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	
66D---------- Paxton	3R	Moderate	Moderate	Moderate	Slight	Moderate	Northern red oak---- Red pine---------- Eastern white pine-- Sugar maple---------	65 67 66 75	Red pine, eastern white pine, Norway spruce, European larch.
67B, 67C---------- Paxton	3A	Slight	Slight	Slight	Moderate	Moderate	Northern red oak---- Eastern white pine-- Red pine---------- Sugar maple---------	65 66 67 75	Red pine, Norway spruce, eastern white pine, European larch.
67D, 67E---------- Paxton	3R	Moderate	Moderate	Slight	Moderate	Moderate	Northern red oak---- Eastern white pine-- Red pine---------- Sugar maple---------	65 66 67 75	Red pine, Norway spruce, eastern white pine, European larch.
97*: Greenwood--------- Ossipee---------- 115, 125---------- Scarboro	2W 5W 6W 	Slight Slight Slight 	Severe Severe Severe 	Severe Severe Severe 	Severe Severe Severe 	Severe --- --- 	Black spruce-------- Balsam fir---------- Tamarack---------- Red maple---------- Black spruce-------- Tamarack---------- Balsam fir---------- Yellow birch-------- Black ash---------- Eastern white pine-- Red maple---------- Atlantic white-cedar	15 39 --- --- --- --- --- --- --- 55 55 45	
129B, 129C--------- Woodbridge	8A	Slight	Slight	Slight	Moderate	Moderate	Northern red oak---- Red pine---------- Eastern white pine-- Red spruce---------- Sugar maple---------	72 65 67 50 65	Eastern white pine, European larch, red pine.
134---------- Maybid	2W	Slight	Severe	Severe	Severe	---	Red maple----------	55	
140B*, 140C*: Chatfield--------- 	3A	Slight	Slight	Slight	Slight	---	Sugar maple--------- Northern red oak---- White ash----------	65 70 75	Eastern white pine, red pine, European larch, Norway spruce.

See footnote at end of table

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	
140B*, 140C*:									
Hollis	2D	Slight	Slight	Moderate	Severe	Slight	Northern red oak	47	Eastern white pine.
							Eastern white pine	55	
							Sugar maple	56	
Canton	7A	Slight	Slight	Slight	Slight	Slight	Eastern white pine	58	Eastern white pine, white spruce.
							Northern red oak	52	
140D*:									
Chatfield	3R	Slight	Moderate	Slight	Slight	---	Sugar maple	65	Eastern white pine, red pine, European larch, Norway spruce.
							Northern red oak	70	
							White ash	75	
Hollis	2D	Moderate	Moderate	Moderate	Severe	Slight	Northern red oak	47	Eastern white pine.
							Eastern white pine	55	
							Sugar maple	56	
Canton	7R	Slight	Moderate	Slight	Slight	Slight	Eastern white pine	58	Eastern white pine, white spruce.
							Northern red oak	52	
141E*:									
Hollis	2D	Moderate	Moderate	Moderate	Severe	Slight	Northern red oak	47	Eastern white pine.
							Eastern white pine	55	
							Sugar maple	56	
Rock outcrop.									
Chatfield	3R	Moderate	Severe	Slight	Slight	---	Sugar maple	65	Eastern white pine, red pine, European larch, Norway spruce.
							Northern red oak	70	
							White ash	75	
295	2W	Slight	Severe	Severe	Severe	Severe	Black spruce	15	
Greenwood							Balsam fir	39	
							Tamarack	---	
							Red maple	---	
305*:									
Lim	4W	Slight	Severe	Severe	Severe	Severe	Red maple	75	Eastern white pine, white spruce.
							Eastern white pine	65	
Pootatuck	10A	Slight	Slight	Slight	Slight	Moderate	Eastern white pine	75	Eastern white pine, white spruce.
							Red pine	75	
							Red maple	60	
							Yellow birch	60	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	
313A, 313B--------- Deerfield	8S	Slight	Slight	Moderate	Slight	---	Eastern white pine-- Northern red oak---- Red maple----------	60 55 ---	Eastern white pine, red pine, European larch.
314A--------------- Pipestone	5S	Slight	Slight	Severe	Slight	Moderate	Northern red oak---- Eastern white pine-- Quaking aspen------- White ash---------- Red maple----------	70 60 --- --- ---	Eastern white pine, eastern cottonwood, red maple, European larch, red pine.
343C, 343D--------- Canton	7X	Slight	Moderate	Slight	Slight	Slight	Eastern white pine-- Northern red oak----	58 52	Eastern white pine, white spruce.
395---------------- Chocorua	5W	Slight	Severe	Severe	Severe	---	Black spruce-------- Tamarack---------- Balsam fir---------- Yellow birch-------- Speckled alder------ Black ash----------	--- --- --- --- --- ---	
446A*, 446B*, 447A*, 447B*, 447C*:									
Scituate--------- Newfields-------- Eastern white pine-- Northern red oak---- Sugar maple--------- Red pine----------	3A	Slight	Slight	Slight	Slight	Moderate	Northern red oak---- Eastern white pine-- Sugar maple--------- Red pine---------- Eastern white pine-- Northern red oak---- Red maple----------	61 65 55 70 55 60 55	Eastern white pine. Eastern white pine, red pine, white spruce.
460B, 460C--------- Pennichuck	9A	Slight	Slight	Slight	Slight	Moderate	Eastern white pine-- Northern red oak---- White oak---------- Red maple---------- Sugar maple---------	70 65 60 75 ---	Eastern white pine, red pine, European larch, eastern hemlock.
495---------------- Ossipee	5W	Slight	Severe	Severe	Severe	---	Black spruce-------- Tamarack---------- Balsam fir---------- Yellow birch-------- Black ash----------	--- --- --- --- ---	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	
510A, 510B, 510C--- Hoosic	3A	Slight	Slight	Slight	Slight	---	Sugar maple--------- Northern red oak---- Eastern white pine--	65 75 ---	Eastern white pine, red pine, European larch.
510D---------- Hoosic	3R	Slight	Moderate	Slight	Slight	---	Sugar maple--------- Northern red oak---- Eastern white pine--	65 75 ---	Eastern white pine, red pine, European larch.
531B---------- Scio	4A	Slight	Slight	Slight	Slight	---	Northern red oak---- White ash---------- Sugar maple--------- Black cherry-------- Eastern hemlock----- Eastern white pine--	75 85 70 80 70 85	European larch, eastern white pine, red pine, Norway spruce, white spruce.
533---------- Raynham	3W	Slight	Severe	Moderate	Severe	---	Red maple---------- Eastern white pine-- White spruce-------- Red spruce---------- Elm---------- Eastern hemlock----- Gray birch---------- Sugar maple--------- Balsam fir---------- Tamarack----------	65 65 55 45 --- --- --- --- --- ---	Eastern white pine, white spruce.
538A---------- Squamscott	3W	Slight	Severe	Moderate	Severe	---	Eastern white pine-- Red maple---------- Northern red oak---- Sugar maple---------	60 55 60 50	Eastern white pine, balsam fir, white spruce, black spruce.
546A, 547A, 547B--- Walpole	3W	Slight	Severe	Severe	Severe	Severe	Red maple---------- White ash---------- Eastern hemlock----- Eastern white pine--	75 61 54 68	Eastern white pine, white spruce, northern white-cedar, Norway spruce.
599*: Urban land.									
Hoosic----------	3A	Slight	Slight	Slight	Slight	---	Sugar maple--------- Northern red oak----	65 75	Eastern white pine, red pine, European larch.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	
656A, 657A, 657B--- Ridgebury	3W	Slight	Severe	Severe	Severe	---	Northern red oak---- Red spruce---------- Eastern white pine-- Sugar maple--------- Red maple-----------	57 47 63 52 ---	Eastern white pine, white spruce.
799*: Urban land.									
Canton----------	7A	Slight	Slight	Slight	Slight	---	Eastern white pine-- Northern red oak----	58 52	Eastern white pine, white spruce.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--RECREATIONAL DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
12A Hinckley	Slight	Slight	Moderate: small stones.	Slight	Moderate: droughty.
12B Hinckley	Slight	Slight	Moderate: slope, small stones.	Slight	Moderate: droughty.
12C Hinckley	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: droughty, slope.
12E Hinckley	Moderate: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
26A Windsor	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: droughty.
26B Windsor	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
26C Windsor	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty, slope.
26E Windsor	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
29A Woodbridge	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
29B Woodbridge	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
30A Unadilla	Slight	Slight	Slight	Slight	Slight.
30B Unadilla	Slight	Slight	Moderate: slope.	Moderate: erodes easily.	Slight.
32A, 32B Boxford	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
32C Boxford	Severe: wetness.	Moderate: slope, wetness, percs slowly.	Severe: slope, wetness.	Moderate: wetness.	Moderate: wetness, slope.
33A Scitico	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
38A, 38B---------- Eldridge	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
42B---------- Canton	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight----------	Moderate: small stones.
42C---------- Canton	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight----------	Moderate: slope, small stones.
42D---------- Canton	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
43B---------- Canton	Moderate: large stones.	Moderate: large stones.	Severe: large stones.	Slight----------	Moderate: large stones.
43C---------- Canton	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Slight----------	Moderate: large stones, slope.
43D---------- Canton	Severe: slope.	Severe: slope.	Severe: slope, large stones.	Moderate: slope.	Severe: slope.
43E---------- Canton	Severe: slope.	Severe: slope.	Severe: slope, large stones.	Severe: slope.	Severe: slope.
44B---------- Montauk	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones.	Slight----------	Slight.
44C---------- Montauk	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight----------	Moderate: slope.
45B---------- Montauk	Moderate: large stones, percs slowly.	Moderate: large stones.	Severe: large stones, small stones.	Slight----------	Moderate: small stones, large stones.
45C---------- Montauk	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope, small stones.	Slight----------	Moderate: small stones, large stones, slope.
45D---------- Montauk	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: slope.	Severe: slope.
62B---------- Charlton	Slight----------	Slight----------	Moderate: slope, small stones.	Slight----------	Slight.
62C---------- Charlton	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.
63B---------- Charlton	Moderate: large stones.	Moderate: large stones.	Severe: large stones.	Slight----------	Moderate: large stones.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
63C Charlton	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Slight	Moderate: large stones, slope.
63D Charlton	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Moderate: slope.	Severe: slope.
66B Paxton	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones, percs slowly.	Slight	Slight.
66C Paxton	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
66D Paxton	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
67B Paxton	Moderate: large stones.	Moderate: large stones.	Severe: large stones.	Slight	Moderate: large stones.
67C Paxton	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Slight	Moderate: large stones, slope.
67D Paxton	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Moderate: slope.	Severe: slope.
67E Paxton	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Severe: slope.
97*: Greenwood	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
Ossipee	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
115 Scarboro	Severe: ponding, excess humus.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding, excess humus.
125 Scarboro	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: large stones, ponding, excess humus.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
129B Woodbridge	Moderate: large stones, wetness.	Moderate: wetness, large stones.	Severe: large stones.	Moderate: wetness.	Moderate: large stones, wetness.
129C Woodbridge	Moderate: slope, large stones, wetness.	Moderate: slope, wetness, large stones.	Severe: large stones, slope.	Moderate: wetness.	Moderate: large stones, wetness, slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
134---------- Maybid	Severe: ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding.
140B*:					
Chatfield----------	Moderate: large stones.	Moderate: large stones.	Severe: large stones, small stones.	Slight----------	Moderate: small stones, large stones.
Hollis----------	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, depth to rock.	Slight----------	Severe: thin layer.
Canton----------	Moderate: large stones.	Moderate: large stones.	Severe: large stones.	Slight----------	Moderate: large stones.
140C*:					
Chatfield----------	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope, small stones.	Slight----------	Moderate: small stones, large stones, slope.
Hollis----------	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Slight----------	Severe: thin layer.
Canton----------	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Slight----------	Moderate: large stones, slope.
140D*:					
Chatfield----------	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: slope.	Severe: slope.
Hollis----------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Moderate: slope.	Severe: slope, thin layer.
Canton----------	Severe: slope.	Severe: slope.	Severe: slope, large stones.	Moderate: slope.	Severe: slope.
141E*:					
Hollis----------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Severe: slope, thin layer.
Rock outcrop.					
Chatfield----------	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
295--- Greenwood	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
298*. Pits					
299. Udorthents					
305*:					
Lim---	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Pootatuck---	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Severe: flooding.
313A--- Deerfield	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Slight---	Moderate: wetness.
313B--- Deerfield	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Slight---	Moderate: wetness.
314A--- Pipestone	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
343C--- Canton	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Moderate: large stones.	Moderate: large stones, slope.
343D--- Canton	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Moderate: large stones, slope.	Severe: slope.
395--- Chocorua	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
397--- Ipswich	Severe: ponding, flooding, excess humus.	Severe: ponding, excess humus, excess salt.	Severe: ponding, flooding, excess humus.	Severe: ponding, excess humus.	Severe: excess salt, ponding.
446A*:					
Scituate---	Moderate: percs slowly, wetness.	Moderate: wetness, percs slowly.	Severe: small stones.	Moderate: wetness.	Moderate: small stones, wetness.
Newfields---	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Slight---	Slight.
446B*:					
Scituate---	Moderate: percs slowly, wetness.	Moderate: wetness, percs slowly.	Severe: small stones.	Moderate: wetness.	Moderate: small stones, wetness.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
446B*:					
Newfields	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Slight	Slight.
447A*:					
Scituate	Moderate: large stones, small stones.	Moderate: large stones, wetness.	Severe: large stones, small stones.	Moderate: wetness.	Moderate: large stones.
Newfields	Moderate: wetness.	Moderate: wetness.	Moderate: small stones, wetness.	Slight	Moderate: large stones.
447B*:					
Scituate	Moderate: large stones, small stones.	Moderate: large stones, wetness.	Severe: large stones, small stones.	Moderate: wetness.	Moderate: large stones.
Newfields	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Slight	Moderate: large stones.
447C*:					
Scituate	Moderate: slope, large stones.	Moderate: slope, large stones, wetness.	Severe: slope, large stones, small stones.	Moderate: wetness.	Moderate: slope, large stones.
Newfields	Moderate: slope, wetness.	Moderate: slope, wetness.	Severe: slope.	Slight	Moderate: large stones, slope.
460B Pennichuck	Slight	Slight	Moderate: slope, small stones, depth to rock.	Slight	Moderate: thin layer.
460C Pennichuck	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope, thin layer.
495 Ossipee	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
497 Pawcatuck	Severe: flooding, ponding, excess humus.	Severe: ponding, excess humus, excess salt.	Severe: excess humus, ponding, flooding.	Severe: ponding, excess humus.	Severe: excess salt, excess sulfur, ponding.
510A, 510B Hoosic	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight	Moderate: droughty, small stones.
510C Hoosic	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight	Moderate: droughty, small stones.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
510D---------- Hoosic	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
531B---------- Scio	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Moderate: erodes easily, wetness.	Moderate: wetness.
533---------- Raynham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, erodes easily.	Severe: wetness.
538A---------- Squamscott	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
546A, 547A, 547B------ Walpole	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
597---------- Westbrook	Severe: flooding, ponding, excess humus.	Severe: ponding, excess humus, excess salt.	Severe: excess humus, ponding, flooding.	Severe: ponding, excess humus.	Severe: excess salt, excess sulfur, ponding.
599*: Urban land.					
Hoosic----------	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight----------	Moderate: droughty, small stones.
656A---------- Ridgebury	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
657A, 657B---------- Ridgebury	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, large stones, small stones.	Severe: wetness.	Severe: wetness.
699*. Urban land					
799*: Urban land.					
Canton----------	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight----------	Moderate: small stones.
997---------- Ipswich	Severe: ponding, flooding, excess humus.	Severe: ponding, excess humus, excess salt.	Severe: ponding, flooding, excess humus.	Severe: ponding, excess humus.	Severe: ponding, excess salt.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--WILDLIFE HABITAT

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	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
12A, 12B, 12C---Hinckley	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
12E---Hinckley	Very poor.	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
26A, 26B, 26C---Windsor	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
26E---Windsor	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
29A---Woodbridge	Fair	Good	Good	Good	Fair	Poor	Poor	Good	Good	Poor.
29B---Woodbridge	Fair	Good	Good	Good	Fair	Poor	Very poor.	Good	Good	Very poor.
30A, 30B---Unadilla	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
32A---Boxford	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
32B---Boxford	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
32C---Boxford	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
33A---Scitico	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
38A---Eldridge	Poor	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
38B---Eldridge	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
42B---Canton	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
42C---Canton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
42D---Canton	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
43B---Canton	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
43C, 43D, 43E---Canton	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
44B---Montauk	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	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
44C---------- Montauk	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
45B---------- Montauk	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
45C, 45D---------- Montauk	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
62B---------- Charlton	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
62C---------- Charlton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
63B---------- Charlton	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
63C, 63D---------- Charlton	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
66B---------- Paxton	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
66C---------- Paxton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
66D---------- Paxton	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
67B---------- Paxton	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
67C, 67D, 67E------ Paxton	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
97*:										
Greenwood---------	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Ossipee----------	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
115, 125---------- Scarboro	Very poor.	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair.
129B---------- Woodbridge	Very poor.	Poor	Good	Good	Fair	Poor	Very poor.	Poor	Good	Very poor.
129C---------- Woodbridge	Very poor.	Poor	Good	Good	Fair	Very poor.	Very poor.	Poor	Good	Very poor.
134---------- Maybid	Very poor.	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair.
140B*:										
Chatfield---------	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	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
140B*:										
Hollis	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Canton	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
140C*, 140D*:										
Chatfield	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Hollis	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Canton	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
141E*:										
Hollis	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Rock outcrop.										
Chatfield	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
295 Greenwood	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
298*. Pits										
299. Udorthents										
305*:										
Lim	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Pootatuck	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
313A Deerfield	Poor	Fair	Fair	Poor	Poor	Poor	Poor	Fair	Poor	Poor.
313B Deerfield	Poor	Fair	Fair	Poor	Poor	Poor	Very poor.	Fair	Poor	Very poor.
314A Pipestone	Poor	Poor	Fair	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
343C, 343D Canton	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
395 Chocorua	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
397 Ipswich	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
446A*:										
Scituate	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	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
446A*:										
Newfields	Poor	Fair	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
446B*:										
Scituate	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Newfields	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Good	Good	Very poor.
447A*:										
Scituate	Very poor.	Poor	Good	Good	Good	Poor	Poor	Poor	Good	Poor.
Newfields	Very poor.	Poor	Good	Good	Good	Poor	Poor	Poor	Good	Poor.
447B*:										
Scituate	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
Newfields	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
447C*:										
Scituate	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Newfields	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
460B---------- Pennichuck	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
460C---------- Pennichuck	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
495---------- Ossipee	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
497---------- Pawcatuck	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
510A, 510B, 510C, 510D---------- Hoosic	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
531B---------- Scio	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
533---------- Raynham	Poor	Poor	Fair	Fair	Fair	Good	Fair	Poor	Fair	Fair.
538A---------- Squamscott	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
546A, 547A---------- Walpole	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	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
547B---------- Walpole	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
597---------- Westbrook	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
599*: Urban land.										
Hoosic----------	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
656A---------- Ridgebury	Poor	Poor	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
657A---------- Ridgebury	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
657B---------- Ridgebury	Very poor.	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
699*. Urban land										
799*: Urban land.										
Canton----------	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
997---------- Ipswich	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--BUILDING SITE DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
12A Hinckley	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
12B Hinckley	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
12C Hinckley	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
12E Hinckley	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
26A Windsor	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
26B Windsor	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
26C Windsor	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
26E Windsor	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
29A Woodbridge	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: frost action.	Moderate: wetness.
29B Woodbridge	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: frost action.	Moderate: wetness.
30A Unadilla	Severe: cutbanks cave.	Slight	Slight	Slight	Severe: frost action.	Slight.
30B Unadilla	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Severe: frost action.	Slight.
32A, 32B Boxford	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, frost action.	Moderate: wetness.
32C Boxford	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Severe: low strength, frost action.	Moderate: wetness, slope.
33A Scitico	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
38A Eldridge	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness, frost action.	Moderate: wetness, droughty.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
38B---------- Eldridge	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Moderate: wetness, frost action.	Moderate: wetness, droughty.
42B---------- Canton	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: small stones.
42C---------- Canton	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope, small stones.
42D---------- Canton	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
43B---------- Canton	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: large stones.
43C---------- Canton	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: large stones, slope.
43D, 43E---------- Canton	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
44B---------- Montauk	Moderate: dense layer, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, slope.	Moderate: wetness, frost action.	Slight.
44C---------- Montauk	Moderate: dense layer, wetness, slope.	Moderate: wetness, slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: slope.
45B---------- Montauk	Moderate: dense layer, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, slope.	Moderate: wetness, frost action.	Moderate: small stones, large stones.
45C---------- Montauk	Moderate: dense layer, wetness, slope.	Moderate: wetness, slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: small stones, large stones, slope.
45D---------- Montauk	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
62B---------- Charlton	Slight---------	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
62C---------- Charlton	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
63B---------- Charlton	Slight---------	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: large stones.
63C---------- Charlton	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: large stones, slope.
63D---------- Charlton	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
66B Paxton	Moderate: dense layer, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, slope.	Moderate: wetness, frost action.	Slight.
66C Paxton	Moderate: dense layer, wetness, slope.	Moderate: wetness, slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: slope.
66D Paxton	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
67B Paxton	Moderate: dense layer, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, slope.	Moderate: wetness, frost action.	Moderate: large stones.
67C Paxton	Moderate: dense layer, wetness, slope.	Moderate: wetness, slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: large stones, slope.
67D, 67E Paxton	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
97*: Greenwood	Severe: excess humus, ponding.	Severe: subsides, ponding, low strength.	Severe: subsides, ponding, low strength.	Severe: subsides, ponding, low strength.	Severe: ponding, frost action, subsides.	Severe: ponding, excess humus.
Ossipee	Severe: excess humus, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: frost action, ponding.	Severe: ponding, excess humus.
115 Scarboro	Severe: cutbanks cave, excess humus, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding, frost action.	Severe: ponding, excess humus.
125 Scarboro	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding, frost action.	Severe: ponding, excess humus.
129B Woodbridge	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: frost action.	Moderate: large stones, wetness.
129C Woodbridge	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: frost action.	Moderate: large stones, wetness, slope.
134 Maybid	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding, low strength, frost action.	Severe: ponding.
140B*: Chatfield	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock, frost action.	Moderate: small stones, large stones.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
140B*:						
Hollis	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: thin layer.
Canton	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Moderate: large stones.
140C*:						
Chatfield	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: slope, depth to rock, frost action.	Moderate: small stones, large stones, slope.
Hollis	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: thin layer.
Canton	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: large stones, slope.
140D*:						
Chatfield	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hollis	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, thin layer.
Canton	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
141E*:						
Hollis	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, thin layer.
Rock outcrop.						
Chatfield	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
295 Greenwood	Severe: excess humus, ponding.	Severe: subsides, ponding, low strength.	Severe: subsides, ponding, low strength.	Severe: subsides, ponding, low strength.	Severe: ponding, frost action, subsides.	Severe: ponding, excess humus.
298*. Pits						
299. Udorthents						
305*:						
Lim	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding, frost action.	Severe: wetness, flooding.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
305*:						
Pootatuck	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.
313A---------- Deerfield	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: frost action, wetness.	Moderate: wetness.
313B---------- Deerfield	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: slope, wetness.	Moderate: frost action, wetness.	Moderate: wetness.
314A---------- Pipestone	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
343C---------- Canton	Severe: cutbanks cave.	Moderate: slope, large stones.	Moderate: slope.	Severe: slope.	Moderate: slope, large stones.	Moderate: large stones, slope.
343D---------- Canton	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
395---------- Chocorua	Severe: cutbanks cave, excess humus, ponding.	Severe: ponding, shrink-swell, low strength.	Severe: ponding.	Severe: ponding, shrink-swell, low strength.	Severe: low strength, ponding, frost action.	Severe: ponding, excess humus.
397---------- Ipswich	Severe: excess humus, ponding.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding, low strength.	Severe: low strength, ponding, flooding.	Severe: excess salt, ponding.
446A*:						
Scituate	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, frost action.	Moderate: small stones, wetness.
Newfields	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength, wetness, frost action.	Slight.
446B*:						
Scituate	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: wetness, frost action.	Moderate: small stones, wetness.
Newfields	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: low strength, wetness, frost action.	Slight.
447A*:						
Scituate	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, frost action.	Moderate: large stones.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
447A*:						
Newfields	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, frost action.	Moderate: large stones.
447B*:						
Scituate	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: wetness, frost action.	Moderate: large stones.
Newfields	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: wetness, frost action.	Moderate: large stones.
447C*:						
Scituate	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: slope, large stones.
Newfields	Severe: cutbanks cave, wetness.	Moderate: slope, wetness.	Severe: wetness.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: large stones, slope.
460B---------- Pennichuck	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock.	Moderate: thin layer.
460C---------- Pennichuck	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope.	Moderate: slope, thin layer.
495---------- Ossipee	Severe: excess humus, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: frost action, ponding.	Severe: ponding, excess humus.
497---------- Pawcatuck	Severe: cutbanks cave, excess humus, wetness.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding.	Severe: flooding, ponding, low strength.	Severe: ponding, flooding, frost action.	Severe: excess salt, excess sulfur, ponding.
510A---------- Hoosic	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: droughty, small stones.
510B---------- Hoosic	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: droughty, small stones.
510C---------- Hoosic	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, small stones.
510D---------- Hoosic	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
531B---------- Scio	Severe: wetness, cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: frost action.	Moderate: wetness.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
533--- Raynham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: frost action, wetness.	Severe: wetness.
538A--- Squamscott	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
546A, 547A, 547B-- Walpole	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
597--- Westbrook	Severe: excess humus, ponding.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding.	Severe: flooding, ponding, low strength.	Severe: ponding, flooding, frost action.	Severe: excess salt, excess sulfur, ponding.
599*: Urban land.						
Hoosic---	Severe: cutbanks cave.	Slight---	Slight---	Moderate: slope.	Slight---	Moderate: droughty, small stones.
656A, 657A, 657B-- Ridgebury	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
699*. Urban land						
799*: Urban land.						
Canton---	Severe: cutbanks cave.	Slight---	Slight---	Moderate: slope.	Slight---	Moderate: small stones.
997--- Ipswich	Severe: ponding, excess humus.	Severe: ponding, flooding, low strength.	Severe: ponding, flooding, low strength.	Severe: ponding, flooding, low strength.	Severe: ponding, low strength, flooding.	Severe: ponding, excess salt.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--SANITARY FACILITIES

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Daily cover for landfill
12A, 12B Hinckley	Severe: poor filter.	Severe: seepage.	Poor: seepage, too sandy, small stones.
12C Hinckley	Severe: poor filter.	Severe: seepage, slope.	Poor: seepage, too sandy, small stones.
12E Hinckley	Severe: poor filter, slope.	Severe: seepage, slope.	Poor: seepage, too sandy, slope.
26A, 26B Windsor	Severe: poor filter.	Severe: seepage.	Poor: seepage, too sandy.
26C Windsor	Severe: poor filter.	Severe: seepage, slope.	Poor: seepage, too sandy.
26E Windsor	Severe: poor filter, slope.	Severe: seepage, slope.	Poor: seepage, too sandy, slope.
29A Woodbridge	Severe: wetness, percs slowly.	Slight	Fair: small stones, wetness.
29B Woodbridge	Severe: wetness, percs slowly.	Moderate: slope.	Fair: small stones, wetness.
30A, 30B Unadilla	Slight	Severe: seepage.	Fair: thin layer.
32A Boxford	Severe: wetness, percs slowly.	Slight	Poor: too clayey, wetness.
32B Boxford	Severe: wetness, percs slowly.	Moderate: slope.	Poor: too clayey, wetness.
32C Boxford	Severe: wetness, percs slowly.	Severe: slope.	Poor: too clayey, wetness.
33A Scitico	Severe: wetness, percs slowly.	Slight	Poor: too clayey, wetness, hard to pack.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Daily cover for landfill
38A, 38B---------- Eldridge	Severe: wetness, percs slowly, poor filter.	Severe: seepage, wetness.	Poor: too clayey, wetness.
42B---------- Canton	Slight----------	Severe: seepage.	Poor: seepage, small stones.
42C---------- Canton	Moderate: slope.	Severe: seepage, slope.	Poor: seepage, small stones.
42D---------- Canton	Severe: slope.	Severe: seepage, slope.	Poor: seepage, small stones, slope.
43B---------- Canton	Slight----------	Severe: seepage.	Poor: seepage, small stones.
43C---------- Canton	Moderate: slope.	Severe: slope, seepage.	Poor: seepage, small stones.
43D, 43E---------- Canton	Severe: slope.	Severe: slope, seepage.	Poor: seepage, small stones, slope.
44B---------- Montauk	Severe: percs slowly, wetness.	Severe: seepage.	Poor: seepage.
44C---------- Montauk	Severe: percs slowly, wetness.	Severe: slope, seepage.	Poor: seepage.
45B---------- Montauk	Severe: percs slowly, wetness.	Moderate: slope.	Poor: seepage.
45C---------- Montauk	Severe: percs slowly, wetness.	Severe: slope.	Poor: seepage.
45D---------- Montauk	Severe: percs slowly, slope, wetness.	Severe: slope.	Poor: seepage, slope.
62B---------- Charlton	Slight----------	Severe: seepage.	Fair: small stones.
62C---------- Charlton	Moderate: slope.	Severe: seepage, slope.	Fair: small stones, slope.
63B---------- Charlton	Slight----------	Severe: seepage.	Fair: small stones.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Daily cover for landfill
63C---------- Charlton	Moderate: slope.	Severe: seepage, slope.	Fair: small stones, slope.
63D---------- Charlton	Severe: slope.	Severe: seepage, slope.	Poor: slope.
66B---------- Paxton	Severe: percs slowly.	Moderate: slope.	Fair: small stones, wetness.
66C---------- Paxton	Severe: percs slowly.	Severe: slope.	Fair: small stones, slope, wetness.
66D---------- Paxton	Severe: percs slowly, slope.	Severe: slope.	Poor: slope.
67B---------- Paxton	Severe: percs slowly.	Moderate: slope.	Fair: small stones, wetness.
67C---------- Paxton	Severe: percs slowly.	Severe: slope.	Fair: small stones, slope, wetness.
67D, 67E---------- Paxton	Severe: percs slowly, slope.	Severe: slope.	Poor: slope.
97*: Greenwood----------	Severe: subsides, ponding.	Severe: seepage, excess humus, ponding.	Poor: ponding, excess humus.
Ossipee----------	Severe: ponding, percs slowly.	Severe: seepage, excess humus, ponding.	Poor: ponding.
115---------- Scarboro	Severe: ponding, poor filter.	Severe: excess humus, ponding.	Poor: seepage, too sandy, small stones.
125---------- Scarboro	Severe: ponding, poor filter.	Severe: seepage, excess humus, ponding.	Poor: seepage, too sandy, ponding.
129B---------- Woodbridge	Severe: wetness, percs slowly.	Moderate: slope.	Fair: small stones, wetness.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Daily cover for landfill
129C Woodbridge	Severe: wetness, percs slowly.	Severe: slope.	Fair: small stones, slope, wetness.
134 Maybid	Severe: ponding, percs slowly.	Slight	Poor: ponding, too clayey.
140B*: Chatfield	Severe: depth to rock.	Severe: seepage, depth to rock.	Poor: area reclaim.
Hollis	Severe: depth to rock.	Severe: seepage, depth to rock.	Poor: area reclaim, thin layer.
Canton	Slight	Severe: seepage.	Poor: seepage, small stones.
140C*: Chatfield	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Poor: area reclaim.
Hollis	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Poor: area reclaim, thin layer.
Canton	Moderate: slope.	Severe: slope, seepage.	Poor: seepage, small stones.
140D*: Chatfield	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Poor: area reclaim, slope.
Hollis	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Poor: area reclaim, slope, thin layer.
Canton	Severe: slope.	Severe: slope, seepage.	Poor: seepage, small stones, slope.
141E*: Hollis	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Poor: area reclaim, slope, thin layer.
Rock outcrop.			

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Daily cover for landfill
141E*:			
Chatfield	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Poor: area reclaim, slope.
295---------- Greenwood	Severe: subsides, ponding.	Severe: seepage, excess humus, ponding.	Poor: ponding, excess humus.
298*. Pits			
299. Udorthents			
305*:			
Lim	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Poor: seepage, too sandy, wetness.
Pootatuck	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Poor: seepage, too sandy.
313A, 313B---------- Deerfield	Severe: wetness, poor filter.	Severe: seepage, wetness.	Poor: too sandy, seepage.
314A---------- Pipestone	Severe: wetness, poor filter.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
343C---------- Canton	Moderate: slope.	Severe: slope, seepage.	Poor: seepage, small stones.
343D---------- Canton	Severe: slope.	Severe: slope, seepage.	Poor: seepage, small stones, slope.
395---------- Chocorua	Severe: ponding, poor filter.	Severe: seepage, excess humus, ponding.	Poor: seepage, too sandy, ponding.
397---------- Ipswich	Severe: flooding, ponding.	Severe: seepage, flooding, excess humus.	Poor: ponding, excess humus, excess salt.
446A*:			
Scituate	Severe: wetness, percs slowly.	Slight	Fair: small stones, wetness.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Daily cover for landfill
446A*:			
Newfields	Severe: wetness.	Severe: seepage, wetness.	Poor: seepage.
446B*:			
Scituate	Severe: wetness, percs slowly.	Moderate: slope.	Fair: small stones, wetness.
Newfields	Severe: wetness.	Severe: seepage, wetness.	Poor: seepage.
447A*:			
Scituate	Severe: wetness, percs slowly.	Slight	Fair: small stones, wetness.
Newfields	Severe: wetness.	Severe: seepage, wetness.	Poor: seepage.
447B*:			
Scituate	Severe: wetness, percs slowly.	Moderate: slope.	Fair: small stones, wetness.
Newfields	Severe: wetness.	Severe: seepage, wetness.	Poor: seepage.
447C*:			
Scituate	Severe: wetness, percs slowly.	Severe: slope.	Fair: small stones, slope, wetness.
Newfields	Severe: wetness.	Severe: seepage, slope, wetness.	Poor: seepage.
460B---- Pennichuck	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim, small stones.
460C---- Pennichuck	Severe: depth to rock.	Severe: depth to rock, slope.	Poor: area reclaim, small stones.
495---- Ossipee	Severe: ponding, percs slowly.	Severe: seepage, excess humus, ponding.	Poor: ponding.
497---- Pawcatuck	Severe: flooding, ponding, poor filter.	Severe: seepage, flooding, excess humus.	Poor: ponding, excess humus, excess salt.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Daily cover for landfill
510A, 510B---------- Hoosic	Severe: poor filter.	Severe: seepage.	Poor: small stones, seepage, too sandy.
510C---------- Hoosic	Severe: poor filter.	Severe: slope, seepage.	Poor: small stones, seepage, too sandy.
510D---------- Hoosic	Severe: poor filter, slope.	Severe: slope, seepage.	Poor: small stones, seepage, too sandy.
531B---------- Scio	Severe: wetness, poor filter.	Severe: seepage.	Fair: wetness, thin layer.
533---------- Raynham	Severe: percs slowly, wetness.	Severe: wetness.	Poor: wetness.
538A---------- Squamscott	Severe: wetness, percs slowly, poor filter.	Severe: seepage, wetness.	Poor: wetness.
546A, 547A, 547B---- Walpole	Severe: wetness, poor filter.	Severe: seepage, wetness.	Poor: seepage, too sandy, small stones.
597---------- Westbrook	Severe: flooding, ponding.	Severe: flooding, excess humus, ponding.	Poor: ponding, excess humus, excess salt.
599*: Urban land.			
Hoosic----------	Severe: poor filter.	Severe: seepage.	Poor: small stones, seepage, too sandy.
656A, 657A---------- Ridgebury	Severe: percs slowly, wetness.	Slight----------	Poor: wetness.
657B---------- Ridgebury	Severe: percs slowly, wetness.	Moderate: slope.	Poor: wetness.
699*. Urban land			
799*: Urban land.			

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Daily cover for landfill
799*: Canton	Moderate: slope.	Severe: seepage.	Poor: seepage, small stones.
997 Ipswich	Severe: ponding, flooding.	Severe: seepage, flooding, excess humus.	Poor: excess humus, ponding, excess salt.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--CONSTRUCTION MATERIALS

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
12A, 12B, 12C--------- Hinckley	Good----------	Probable----------	Probable----------	Poor: too sandy, area reclaim, small stones.
12E--------- Hinckley	Poor: slope.	Probable----------	Probable----------	Poor: too sandy, small stones, slope.
26A, 26B, 26C--------- Windsor	Good----------	Probable----------	Improbable: too sandy.	Poor: too sandy.
26E--------- Windsor	Poor: slope.	Probable----------	Improbable: too sandy.	Poor: too sandy, slope.
29A, 29B--------- Woodbridge	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones.
30A, 30B--------- Unadilla	Good----------	Probable----------	Probable----------	Moderate: area reclaim.
32A, 32B, 32C--------- Boxford	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
33A--------- Scitico	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
38A, 38B--------- Eldridge	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
42B, 42C--------- Canton	Good----------	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
42D--------- Canton	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
43B, 43C--------- Canton	Good----------	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
43D--------- Canton	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
43E--------- Canton	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
44B, 44C, 45B, 45C---- Montauk	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
45D Montauk	Fair: wetness, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
62B Charlton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
62C Charlton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, slope.
63B Charlton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
63C Charlton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, slope.
63D Charlton	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
66B Paxton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones.
66C Paxton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones, slope.
66D Paxton	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
67B Paxton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones.
67C Paxton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones, slope.
67D Paxton	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
67E Paxton	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
97*: Greenwood	Poor: wetness, low strength.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.
Ossipee	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, wetness.
115 Scarboro	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, small stones, area reclaim.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
125--Scarboro	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
129B--Woodbridge	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones.
129C--Woodbridge	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones, slope.
134--Maybid	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
140B*, 140C*:				
Chatfield	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Hollis	Poor: area reclaim, thin layer.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: area reclaim, thin layer.
Canton	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
140D*:				
Chatfield	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Hollis	Poor: area reclaim, thin layer.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: area reclaim, thin layer, slope.
Canton	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
141E*:				
Hollis	Poor: area reclaim, thin layer, slope.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: area reclaim, thin layer, slope.
Rock outcrop.				
Chatfield	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
295--Greenwood	Poor: wetness, low strength.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
298*. Pits				
299. Udorthents				
305*:				
Lim	Poor: wetness.	Probable	Improbable: too sandy.	Poor: wetness.
Pootatuck	Fair: wetness.	Probable	Improbable: too sandy.	Fair: thin layer.
313A, 313B---- Deerfield	Fair: wetness.	Probable	Improbable: excess fines.	Poor: too sandy, thin layer.
314A---- Pipestone	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
343C---- Canton	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones, area reclaim.
343D---- Canton	Fair: large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones, area reclaim, slope.
395---- Chocorua	Poor: wetness.	Probable	Improbable: too sandy.	Poor: excess humus, wetness.
397---- Ipswich	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, excess salt, wetness.
446A*, 446B*:				
Scituate	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Newfields	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
447A*, 447B*, 447C*:				
Scituate	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Newfields	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
460B, 460C---- Pennichuck	Poor: area reclaim.	Improbable: excess fines, thin layer.	Improbable: thin layer.	Poor: small stones.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
495--- Ossipee	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, wetness.
497--- Pawcatuck	Poor: wetness.	Probable	Improbable: excess fines.	Poor: excess humus, excess salt, wetness.
510A, 510B, 510C--- Hoosic	Good	Probable	Probable	Poor: small stones, area reclaim.
510D--- Hoosic	Fair: slope.	Probable	Probable	Poor: small stones, area reclaim, slope.
531B--- Scio	Fair: wetness.	Probable	Probable	Fair: area reclaim.
533--- Raynham	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
538A--- Squamscott	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
546A, 547A, 547B--- Walpole	Poor: wetness.	Probable	Probable	Poor: small stones, wetness.
597--- Westbrook	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, excess salt, wetness.
599*: Urban land.				
Hoosic	Good	Probable	Probable	Poor: small stones, area reclaim.
656A, 657A, 657B--- Ridgebury	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, small stones, area reclaim.
699*. Urban land				
799*: Urban land.				
Canton	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
997---------- Ipswich	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, excess salt, excess humus.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--WATER MANAGEMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
12A, 12B---------- Hinckley	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Large stones, too sandy.	Large stones, droughty.
12C, 12E---------- Hinckley	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, large stones, too sandy.	Large stones, slope, droughty.
26A, 26B---------- Windsor	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Too sandy------	Droughty.
26C, 26E---------- Windsor	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, too sandy.	Slope, droughty.
29A---------- Woodbridge	Slight---------	Severe: piping.	Severe: no water.	Percs slowly, frost action.	Wetness, percs slowly.	Rooting depth, percs slowly.
29B---------- Woodbridge	Moderate: slope.	Severe: piping.	Severe: no water.	Percs slowly, frost action, slope.	Wetness, percs slowly.	Rooting depth, percs slowly.
30A---------- Unadilla	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily.
30B---------- Unadilla	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily.
32A---------- Boxford	Slight---------	Severe: piping, wetness.	Severe: slow refill.	Percs slowly, frost action.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily.
32B---------- Boxford	Moderate: slope.	Severe: piping, wetness.	Severe: slow refill.	Percs slowly, frost action, slope.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily.
32C---------- Boxford	Severe: slope.	Severe: piping, wetness.	Severe: slow refill.	Percs slowly, frost action, slope.	Slope, erodes easily, wetness.	Wetness, slope, erodes easily.
33A---------- Scitico	Slight---------	Severe: piping, wetness.	Severe: slow refill.	Percs slowly, frost action.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
38A---------- Eldridge	Severe: seepage.	Severe: piping, wetness.	Severe: slow refill, cutbanks cave.	Cutbanks cave	Erodes easily, wetness.	Wetness, erodes easily.
38B---------- Eldridge	Severe: seepage.	Severe: piping, wetness.	Severe: slow refill, cutbanks cave.	Slope, cutbanks cave.	Erodes easily, wetness.	Wetness, erodes easily.
42B---------- Canton	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Too sandy------	Favorable.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
42C, 42D---------- Canton	Severe: slope, seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, too sandy.	Slope.
43B---------- Canton	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Large stones, too sandy.	Large stones.
43C, 43D, 43E----- Canton	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, large stones, too sandy.	Large stones, slope.
44B---------- Montauk	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Percs slowly, slope.	Rooting depth, percs slowly.	Rooting depth, percs slowly.
44C---------- Montauk	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Percs slowly, slope.	Slope, rooting depth, percs slowly.	Slope, rooting depth, percs slowly.
45B---------- Montauk	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Percs slowly, slope.	Percs slowly---	Rooting depth, percs slowly.
45C, 45D---------- Montauk	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Percs slowly, slope.	Slope, percs slowly.	Slope, rooting depth, percs slowly.
62B---------- Charlton	Severe: seepage.	Moderate: seepage, piping.	Severe: no water.	Deep to water	Favorable------	Favorable.
62C---------- Charlton	Severe: slope, seepage.	Moderate: seepage, piping.	Severe: no water.	Deep to water	Slope----------	Slope.
63B---------- Charlton	Severe: seepage.	Moderate: seepage, piping.	Severe: no water.	Deep to water	Favorable------	Favorable.
63C, 63D---------- Charlton	Severe: slope, seepage.	Moderate: seepage, piping.	Severe: no water.	Deep to water	Slope----------	Slope.
66B---------- Paxton	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Percs slowly, rooting depth.	Rooting depth, percs slowly.
66C, 66D---------- Paxton	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, percs slowly, rooting depth.	Slope, rooting depth, percs slowly.
67B---------- Paxton	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Percs slowly, rooting depth.	Rooting depth, percs slowly.
67C, 67D, 67E----- Paxton	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, percs slowly, rooting depth.	Slope, rooting depth, percs slowly.
97*: Greenwood--------	Severe: seepage.	Severe: excess humus, ponding.	Moderate: slow refill.	Ponding, frost action, subsides.	Ponding--------	Wetness.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
97*:						
Ossipee	Severe: seepage.	Severe: piping, ponding.	Severe: slow refill.	Ponding, frost action, subsides.	Ponding	Wetness.
115—Scarboro	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, frost action, cutbanks cave.	Ponding, too sandy.	Wetness, droughty.
125—Scarboro	Severe: seepage.	Severe: seepage, ponding.	Severe: cutbanks cave.	Ponding, frost action, cutbanks cave.	Ponding, too sandy.	Wetness.
129B—Woodbridge	Moderate: slope.	Severe: piping.	Severe: no water.	Percs slowly, frost action, slope.	Wetness, percs slowly.	Rooting depth, percs slowly.
129C—Woodbridge	Severe: slope.	Severe: piping.	Severe: no water.	Percs slowly, frost action, slope.	Slope, wetness, percs slowly.	Slope, rooting depth, percs slowly.
134—Maybid	Slight	Severe: ponding.	Severe: slow refill.	Percs slowly, ponding, frost action.	Ponding, erodes easily, percs slowly.	Wetness, percs slowly, erodes easily.
140B*:						
Chatfield	Moderate: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Depth to rock	Droughty, depth to rock.
Hollis	Severe: depth to rock.	Severe: thin layer, piping.	Severe: no water.	Deep to water	Depth to rock	Droughty, depth to rock.
Canton	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Large stones, too sandy.	Large stones.
140C*, 140D*:						
Chatfield	Severe: slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, droughty, depth to rock.
Hollis	Severe: depth to rock, slope.	Severe: thin layer, piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, droughty, depth to rock.
Canton	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, large stones, too sandy.	Large stones, slope.
141E*:						
Hollis	Severe: depth to rock, slope.	Severe: thin layer, piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, droughty, depth to rock.
Rock outcrop.						
Chatfield	Severe: slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, droughty, depth to rock.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
295--- Greenwood	Severe: seepage.	Severe: excess humus, ponding.	Moderate: slow refill.	Ponding, frost action.	Ponding---	Wetness.
298. Pits						
299. Udorthents						
305*: Lim---	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding, frost action, cutbanks cave.	Wetness, too sandy, poor outlets.	Wetness.
Pootatuck---	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, too sandy.	Favorable.
313A--- Deerfield	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Cutbanks cave	Wetness, too sandy.	Droughty.
313B--- Deerfield	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Slope, cutbanks cave.	Wetness, too sandy.	Droughty.
314A--- Pipestone	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, too sandy, soil blowing.	Wetness, droughty.
343C, 343D--- Canton	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, large stones, too sandy.	Large stones, slope.
395--- Chocorua	Severe: seepage.	Severe: seepage, ponding, piping.	Severe: cutbanks cave.	Subsides, frost action, cutbanks cave.	Ponding---	Wetness.
397--- Ipswich	Severe: seepage.	Severe: excess humus, ponding, excess salt.	Severe: salty water.	Ponding, flooding, excess salt, excess sulfur.	Ponding---	Wetness, excess salt.
446A*: Scituate---	Slight---	Moderate: piping.	Severe: no water.	Percs slowly---	Wetness, percs slowly.	Droughty, rooting depth.
Newfields---	Severe: seepage.	Moderate: seepage, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, too sandy.	Favorable.
446B*: Scituate---	Moderate: slope.	Moderate: piping.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly.	Droughty, rooting depth.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
446B*:						
Newfields	Severe: seepage.	Moderate: seepage, wetness.	Severe: cutbanks cave.	Slope, cutbanks cave.	Wetness, too sandy.	Favorable.
447A*:						
Scituate	Slight	Moderate: piping.	Severe: no water.	Percs slowly	Large stones, wetness, percs slowly.	Large stones, droughty, rooting depth.
Newfields	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Cutbanks cave	Wetness, too sandy.	Favorable.
447B*:						
Scituate	Moderate: slope.	Moderate: piping.	Severe: no water.	Percs slowly, slope.	Large stones, wetness, percs slowly.	Large stones, droughty, rooting depth.
Newfields	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Slope, cutbanks cave.	Wetness, too sandy.	Favorable.
447C*:						
Scituate	Severe: slope.	Moderate: piping.	Severe: no water.	Percs slowly, slope.	Slope, large stones, wetness.	Large stones, slope, droughty.
Newfields	Severe: seepage, slope.	Severe: seepage.	Severe: cutbanks cave.	Slope, cutbanks cave.	Slope, wetness, too sandy.	Slope.
460B Pennichuck	Moderate: seepage, depth to rock, slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Depth to rock	Depth to rock.
460C Pennichuck	Severe: slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock.
495 Ossipee	Severe: seepage.	Severe: piping, ponding.	Severe: slow refill.	Ponding, frost action, subsides.	Ponding	Wetness.
497 Pawcatuck	Severe: seepage.	Severe: excess humus, ponding, excess salt.	Severe: salty water, cutbanks cave.	Flooding, excess sulfur, excess salt.	Ponding	Wetness, excess salt.
510A, 510B Hoosic	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Too sandy	Droughty.
510C, 510D Hoosic	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, too sandy.	Slope, droughty.
531B Scio	Moderate: seepage, slope.	Severe: piping, wetness.	Severe: cutbanks cave.	Slope, cutbanks cave, frost action.	Erodes easily, wetness.	Erodes easily.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
533---------- Raynham	Slight---------	Severe: piping, wetness.	Severe: slow refill.	Percs slowly, frost action.	Wetness, percs slowly, erodes easily.	Wetness, percs slowly, erodes easily.
538A---------- Squamscott	Severe: seepage.	Severe: piping, wetness.	Severe: slow refill, cutbanks cave.	Cutbanks cave, frost action.	Erodes easily, wetness.	Wetness, erodes easily.
546A, 547A-------- Walpole	Severe: seepage.	Severe: seepage, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, too sandy.	Wetness.
547B---------- Walpole	Severe: seepage.	Severe: seepage, wetness.	Severe: cutbanks cave.	Slope, cutbanks cave.	Wetness, too sandy.	Wetness.
597---------- Westbrook	Severe: seepage.	Severe: excess humus, ponding, excess salt.	Severe: salty water.	Ponding, flooding, excess sulfur.	Ponding--------	Wetness, excess salt.
599*: Urban land.						
Hoosic----------	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Too sandy------	Droughty.
656A---------- Ridgebury	Slight---------	Severe: wetness, piping.	Severe: no water.	Percs slowly, frost action.	Wetness, percs slowly, rooting depth.	Wetness, percs slowly, rooting depth.
657A---------- Ridgebury	Slight---------	Severe: piping, wetness.	Severe: no water.	Percs slowly, frost action.	Wetness, percs slowly, rooting depth.	Wetness, percs slowly, rooting depth.
657B---------- Ridgebury	Moderate: slope.	Severe: piping, wetness.	Severe: no water.	Slope, percs slowly, frost action.	Wetness, percs slowly, rooting depth.	Wetness, percs slowly, rooting depth.
699*. Urban land						
799*: Urban land.						
Canton----------	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Too sandy------	Favorable.
997---------- Ipswich	Severe: seepage.	Severe: excess humus, ponding, excess salt.	Severe: salty water.	Flooding, excess salt, ponding, excess sulfur.	Ponding--------	Excess salt, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
12A, 12B, 12C, 12E---------- Hinckley	0-5	Fine sandy loam	SM	A-2, A-4	0-5	85-95	75-90	45-75	25-50	<20	NP
	5-24	Gravelly loamy sand, loamy fine sand, very gravelly loamy sand.	SM, GM, GP-GM, SP-SM	A-1, A-2, A-3	0-20	50-95	30-85	15-70	2-30	<20	NP
	24-60	Stratified very gravelly loamy fine sand to cobbly coarse sand.	SP, SP-SM, GP, GP-GM	A-1	5-25	50-65	30-50	10-40	0-20	<10	NP
26A, 26B, 26C, 26E---------- Windsor	0-12	Loamy sand-------	SM	A-1, A-2	0	95-100	80-100	45-90	20-35	---	NP
	12-21	Loamy sand, loamy fine sand, sand.	SM	A-1, A-2	0	95-100	80-100	45-90	15-30	---	NP
	21-60	Sand, fine sand, loamy sand.	SM, SP, SP-SM	A-1, A-2, A-3	0	90-100	75-100	40-90	2-30	---	NP
29A, 29B--------- Woodbridge	0-8	Fine sandy loam	SM, ML, SM-SC	A-2, A-4	0-10	85-95	70-95	60-85	30-65	<40	NP-10
	8-22	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	75-90	65-95	50-85	25-65	<30	NP-7
	22-60	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	60-95	50-75	20-60	<30	NP-7
30A, 30B--------- Unadilla	0-4	Very fine sandy loam.	ML	A-4	0	100	95-100	90-100	70-90	<35	NP-10
	4-30	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	0	100	95-100	90-100	70-90	<25	NP-10
	30-60	Very gravelly sand, gravelly sand, very fine sand.	GM, GP, SM, SP	A-2, A-1, A-3	0-10	35-100	25-100	10-70	1-40	---	NP
32A, 32B, 32C---- Boxford	0-2	Silt loam--------	ML	A-4, A-5, A-6, A-7	0	98-100	95-100	90-100	85-95	35-50	5-15
	2-13	Silt loam, silty clay loam.	ML, CL	A-4, A-5, A-6, A-7	0	98-100	95-100	90-100	85-95	30-45	5-18
	13-23	Silty clay loam, silty clay.	ML, CL	A-4, A-5, A-6, A-7	0	98-100	95-100	90-100	85-95	30-45	5-18
	23-60	Silty clay loam, silty clay, clay.	CL, ML	A-4, A-5, A-6, A-7	0	98-100	95-100	90-100	80-95	30-45	8-18
33A---------- Scitico	0-6	Silt loam--------	ML, CL-ML	A-4, A-6, A-7	0	100	95-100	90-100	70-95	25-60	5-25
	6-12	Silt loam, silty clay loam, silty clay.	CL, CL-ML	A-4, A-6, A-7	0	100	95-100	90-100	75-100	25-60	5-25
	12-60	Silty clay loam, silty clay, clay.	CL, CL-ML	A-6, A-7, A-4	0	100	95-100	90-100	80-100	25-50	5-25

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
38A, 38B--------- Eldridge	0-8	Fine sandy loam	SM, ML	A-4, A-2-4	0-5	100	95-100	50-85	15-55	---	NP
	8-23	Loamy fine sand, fine sand, sand.	SM, SP-SM	A-2-4, A-3, A-4	0-5	100	95-100	50-85	5-45	---	NP
	23-62	Stratified fine sand to clay.	SM, CL-ML, ML, SM-SC	A-4	0	95-100	90-100	70-100	35-90	<25	NP-5
42B, 42C, 42D---- Canton	0-5	Gravelly fine sandy loam.	SM, ML	A-2, A-4	0-5	80-85	70-75	50-70	30-50	<15	NP-8
	5-21	Fine sandy loam, very fine sandy loam, gravelly fine sandy loam.	SM, ML	A-2, A-4	0-10	80-95	70-90	50-85	30-60	<12	NP-8
	21-60	Gravelly loamy sand, loamy sand, gravelly loamy coarse sand.	SM, SP-SM	A-1, A-2	0-25	65-85	50-90	20-60	10-30	---	NP
43B, 43C, 43D, 43E---------- Canton	0-5	Gravelly fine sandy loam.	SM, ML	A-2, A-4	5-15	80-95	70-90	50-85	30-60	<18	NP-8
	5-21	Fine sandy loam, very fine sandy loam, gravelly fine sandy loam.	SM, ML	A-2, A-4	0-10	80-95	70-90	50-85	30-60	<12	NP-8
	21-60	Gravelly loamy sand, loamy sand, gravelly loamy coarse sand.	SM, SP-SM	A-1, A-2	0-25	65-85	50-90	20-60	10-30	---	NP
44B, 44C--------- Montauk	0-1	Fine sandy loam	SM, SM-SC	A-2, A-4	0-5	80-100	75-100	45-95	20-85	<20	NP-4
	1-30	Fine sandy loam, cobbly fine sandy loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1	0-15	60-100	55-95	35-90	15-80	<20	NP-4
	30-61	Sandy loam, gravelly sandy loam, fine sandy loam.	SM, SP-SM, GM, GP-GM	A-2, A-1, A-4	0-15	60-100	55-95	20-80	10-50	<15	NP-2
45B, 45C, 45D---- Montauk	0-1	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-1, A-2, A-4	5-15	65-80	60-75	30-75	15-70	<20	NP-4
	1-30	Fine sandy loam, cobbly fine sandy loam.	SM, ML, SM-SC, CL-ML	A-1, A-2, A-4	0-5	60-100	55-95	35-90	15-80	<20	NP-4
	30-61	Sandy loam, gravelly sandy loam, fine sandy loam.	SM, SP-SM, GM, GP-GM	A-1, A-2, A-4	0-5	60-100	55-95	20-80	10-50	<15	NP-2
62B, 62C--------- Charlton	0-4	Fine sandy loam	SM, ML	A-2, A-4	0-10	85-95	75-90	50-85	25-65	<25	NP-5
	4-20	Fine sandy loam, gravelly fine sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	65-90	60-90	40-80	20-65	<25	NP-3
	20-60	Gravelly sandy loam, gravelly fine sandy loam, loam.	SM, ML	A-2, A-4	5-25	60-90	55-85	40-75	20-45	---	NP

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
63B, 63C, 63D---- Charlton	0-4	Fine sandy loam	SM, ML	A-2, A-4	0-20	75-95	70-90	60-85	30-70	<25	NP-5
	4-20	Fine sandy loam, gravelly fine sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	65-90	60-90	50-80	20-65	<25	NP-3
	20-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM, ML	A-2, A-4	5-25	60-90	55-85	40-75	20-50	---	NP
66B, 66C, 66D---- Paxton	0-7	Fine sandy loam	SM, ML, SM-SC	A-2, A-4	0-10	80-95	75-90	60-85	30-65	<40	NP-10
	7-18	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	65-90	50-85	25-65	<30	NP-7
	18-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	60-85	50-75	20-60	<30	NP-7
67B, 67C, 67D, 67E---------- Paxton	0-7	Fine sandy loam	SM, ML, SM-SC	A-2, A-4	0-20	80-95	75-90	60-85	30-65	<40	NP-10
	7-18	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	65-90	50-85	25-65	<30	NP-7
	18-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	60-85	50-75	20-60	<30	NP-7
97*:											
Greenwood-------	0-60	Hemic material---	PT	A-8	0	---	---	---	---	---	---
Ossipee---------	0-20	Hemic material---	PT	A-8	2-15	---	---	---	---	---	---
	20-26	Hemic material---	PT	A-8	2-15	---	---	---	---	---	---
	26-60	Silt loam, very fine sandy loam, sandy loam, clay loam.	SM, ML, CL-ML, SC	A-4	0	100	100	100	40-90	<30	NP-10
115---------- Scarboro	0-12	Muck----------	PT	A-8	---	---	---	---	---	---	---
	12-16	Loamy sand, fine sand, sandy loam.	SM, SP-SM	A-1, A-2, A-3	0	95-100	85-100	45-80	5-35	---	NP
	16-60	Stratified loamy fine sand to gravelly coarse sand.	SP, SM, SP-SM	A-1, A-2, A-3	0	70-100	35-100	15-80	0-35	---	NP
125---------- Scarboro	0-12	Muck----------	PT	A-8	0-15	---	---	---	---	---	---
	12-16	Loamy sand, fine sand, sandy loam.	SM, SP-SM	A-1, A-2, A-3, A-4	0-15	95-100	75-100	35-75	5-50	---	NP
	16-60	Stratified loamy fine sand to gravelly coarse sand.	SP, SM, SP-SM	A-1, A-2, A-3	0	70-100	35-100	15-80	0-35	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
129B, 129C-------- Woodbridge	0-8	Fine sandy loam	SM, ML, SM-SC	A-2, A-4	0-20	85-95	70-95	60-85	30-65	<40	NP-10
	8-22	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	75-95	65-95	50-85	25-60	<30	NP-7
	22-60	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	60-95	50-75	25-60	<30	NP-7
134---------- Maybid	0-9	Silt loam--------	ML, CL, CH	A-4, A-6, A-7	0	100	100	90-100	75-95	30-52	4-26
	9-26	Silty clay, silty clay loam, clay.	CL, CH	A-6, A-7	0	100	100	95-100	85-95	30-52	10-26
	26-63	Silty clay loam, silty clay, loam, clay.	CL, CH	A-6, A-7	0	100	100	95-100	85-95	30-52	10-26
140B*, 140C*, 140D*: Chatfield------	0-20	Fine sandy loam	SM, GM, GM-GC, SM-SC	A-4, A-2, A-1	0-10	55-95	50-90	30-65	15-50	10-20	1-6
	20-31	Cobbly fine sandy loam, gravelly fine sandy loam.	SM, ML, GM, CL-ML	A-4, A-2, A-1	0-10	60-95	55-90	33-85	15-75	10-20	1-6
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hollis---------	0-2	Fine sandy loam	SM, ML, GM	A-2, A-4	5-15	65-100	60-95	40-85	20-65	<25	NP-5
	2-13	Gravelly fine sandy loam, cobbly fine sandy loam.	SM, ML, GM	A-2, A-4	0-20	65-100	60-95	40-80	20-65	<25	NP-5
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Canton---------	0-5	Gravelly fine sandy loam.	SM, ML	A-2, A-4	5-15	80-95	70-90	50-85	30-60	<18	NP-8
	5-21	Fine sandy loam, very fine sandy loam, gravelly fine sandy loam.	SM, ML	A-2, A-4	0-10	80-95	70-90	50-85	30-60	<12	NP-8
	21-60	Gravelly loamy sand, loamy sand, gravelly loamy coarse sand.	SM, SP-SM	A-1, A-2	0-25	65-85	50-90	20-60	10-30	---	NP
141E*: Hollis----------	0-2	Fine sandy loam	SM, ML, GM	A-2, A-4	5-15	65-100	60-95	40-85	20-65	<25	NP-5
	2-13	Gravelly fine sandy loam, cobbly fine sandy loam.	SM, ML, GM	A-2, A-4	0-15	65-100	60-95	40-80	20-65	<25	NP-5
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
141E*:											
Chatfield	0-20	Fine sandy loam	SM, GM, GM-GC, SM-SC	A-4, A-2, A-1	0-10	55-95	50-90	30-65	15-50	10-20	1-6
	20-31	Cobbly fine sandy loam, gravelly fine sandy loam.	SM, ML, GM, CL-ML	A-4, A-2, A-1	0-10	60-95	55-90	33-85	15-75	10-20	1-6
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
295 Greenwood	0-60	Hemic material	PT	A-8	0	---	---	---	---	---	---
298*. Pits											
299. Udorthents											
305*:											
Lim	0-8	Very fine sandy loam.	ML	A-4	0	100	95-100	85-100	60-90	<35	NP-7
	8-38	Very fine sandy loam, silt loam, loam.	ML	A-4	0	100	95-100	80-100	55-90	<35	NP-6
	38-44	Fine sandy loam, sandy loam.	SM	A-2, A-4	0	95-100	80-100	55-85	30-50	<25	NP-4
	44-60	Stratified loamy fine sand to very gravelly coarse sand.	SP, SM, SP-SM	A-1, A-2, A-3	0	70-100	45-100	25-75	2-25	---	NP
Pootatuck	0-4	Very fine sandy loam.	SM, ML	A-2, A-4	0	95-100	80-100	55-95	30-75	<25	NP-4
	4-26	Fine sandy loam, very fine sandy loam, loamy very fine sand.	SM	A-2, A-4	0	95-100	80-100	55-85	30-50	<20	NP-2
	26-60	Stratified loamy fine sand to very gravelly coarse sand.	SP, SP-SM, SM	A-1, A-2, A-3	0-15	70-100	45-100	25-75	0-25	---	NP
313A, 313B-- Deerfield	0-8	Fine sandy loam	SM, ML	A-2, A-4	0	95-100	80-100	50-85	25-55	---	NP
	8-21	Loamy sand, sand, coarse sand.	SM, SP-SM	A-1, A-2, A-3	0	95-100	80-100	40-75	5-30	---	NP
	21-60	Sand, fine sand, coarse sand.	SP, SM	A-1, A-2, A-3	0	95-100	65-100	30-75	3-30	---	NP
314A Pipestone	0-6	Sand	SM, SP-SM, SP	A-2-4, A-3	0	95-100	90-100	60-80	0-20	---	NP
	6-33	Sand, fine sand, loamy sand.	SP-SM, SM, SP	A-2-4, A-3	0	95-100	90-100	60-80	0-15	---	NP
	33-60	Sand, fine sand, loamy coarse sand.	SP-SM, SP	A-3, A-2-4	0	95-100	90-100	50-80	0-10	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
343C, 343D------- Canton	0-5	Gravelly fine sandy loam.	SM, ML	A-2, A-4	10-30	70-95	60-90	40-85	25-60	<20	NP-4
	5-21	Fine sandy loam, very fine sandy loam, gravelly fine sandy loam.	SM, ML	A-2, A-4	5-30	70-95	65-90	55-85	30-60	<20	NP-4
	21-60	Gravelly loamy sand, loamy sand, gravelly loamy coarse sand.	SM, SP-SM	A-1, A-2	5-30	65-85	50-80	20-60	10-30	---	NP
395-------------- Chocorua	0-25	Hemic material---	PT	A-8	5-15	---	---	---	---	---	---
	25-60	Stratified gravelly coarse sand to loamy fine sand.	SP, SM	A-1, A-2, A-3	0	75-100	60-100	30-80	0-30	---	NP
397-------------- Ipswich	0-15	Hemic material, fibric material.	PT	A-8	0	---	---	---	---	---	NP
	15-63	Sapric material, hemic material.	PT	A-8	0	---	---	---	---	---	NP
446A*, 446B*: Scituate-------- Newfields-------	0-8	Fine sandy loam	SM, ML	A-2, A-4, A-1	0-5	80-95	70-95	40-85	20-65	<20	NP-4
	8-32	Fine sandy loam, cobbly fine sandy loam, loam.	SM, ML	A-2, A-4, A-1	0-25	70-95	60-95	35-85	20-65	<20	NP-4
	32-60	Loamy sand, gravelly loamy fine sand, gravelly loamy sand.	SM	A-1, A-2	0-25	65-85	50-75	30-65	12-30	<15	NP-2
	0-9	Fine sandy loam	SM, ML	A-2, A-4	0-5	90-100	85-100	55-85	30-60	<18	NP
	9-35	Fine sandy loam, gravelly fine sandy loam.	SM, ML	A-2, A-4	0-10	80-100	70-100	50-85	30-60	<12	NP
	35-64	Loamy sand, fine sand, gravelly loamy sand.	SM, SP-SM, SW-SM	A-1, A-2	0-35	65-100	50-100	20-60	10-30	---	NP
447A*, 447B*, 447C*: Scituate------- Newfields-------	0-8	Fine sandy loam	SM, ML	A-2, A-4, A-1	0-20	70-90	60-95	35-80	20-65	<20	NP-4
	8-32	Fine sandy loam, cobbly fine sandy loam, loam.	SM, ML	A-2, A-4, A-1	0-25	70-95	60-95	35-85	20-65	<20	NP-4
	32-60	Loamy sand, gravelly loamy fine sand, gravelly loamy sand.	SM	A-1, A-2	0-25	65-85	50-75	30-65	12-30	<15	NP-2

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
447A*, 447B*, 447C*:											
Newfields	0-9	Fine sandy loam	SM, ML	A-2, A-4	5-15	80-100	70-95	50-85	30-60	<18	NP
	9-35	Fine sandy loam, gravelly fine sandy loam.	SM, ML	A-2, A-4	0-10	80-95	70-90	50-85	30-60	<12	NP
	35-64	Loamy sand, fine sand, gravelly loamy sand.	SM, SP-SM, SW-SM	A-1, A-2	0-35	65-85	50-80	20-60	10-30	---	NP
460B, 460C---- Pennichuck	0-11	Channery very fine sandy loam.	ML, SM	A-1, A-2, A-4	0-10	70-95	65-90	40-85	20-65	---	NP
	11-25	Very channery fine sandy loam, very channery sandy loam, very channery loam.	SM, GM	A-1, A-2, A-4	5-15	45-85	40-75	30-70	15-50	---	NP
	25-36	Very channery loamy coarse sand, extremely channery sandy loam.	GM, GP-GM	A-1, A-2	10-30	40-60	20-75	10-45	5-35	---	NP
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
495---- Ossipee	0-20	Hemic material---	PT	A-8	2-15	---	---	---	---	---	---
	20-26	Hemic material---	PT	A-8	2-15	---	---	---	---	---	---
	26-60	Silt loam, very fine sandy loam, clay loam.	SM, ML, CL-ML, SC	A-4	0	100	100	100	40-90	<30	NP-10
497---- Pawcatuck	0-35	Hemic material, sapric material, fibric material.	PT	A-8	0	---	---	---	---	---	NP
	35-60	Loamy sand, loamy fine sand, sand, gravelly sand.	SM, SP, SW	A-1, A-2, A-3	0	80-100	60-100	35-75	0-30	---	NP
510A, 510B, 510C, 510D---- Hoosic	0-8	Gravelly fine sandy loam.	GM, SM, ML	A-1, A-2, A-4	5-10	55-80	50-70	30-70	15-60	30-45	2-10
	8-15	Gravelly sandy loam, very gravelly fine sandy loam, gravelly loam.	GM, SM, GP-GM, SP-SM	A-1, A-2, A-4	5-10	40-75	35-65	20-60	10-45	20-30	2-8
	15-60	Very gravelly coarse sand, very gravelly loamy sand.	GM, GP, SP, SM	A-1	10-15	35-65	30-50	15-40	2-20	---	NP
531B---- Scio	0-8	Very fine sandy loam.	ML	A-4	0	100	95-100	90-100	70-90	<20	NP-4
	8-30	Silt loam, very fine sandy loam.	ML	A-4	0	100	95-100	90-100	70-90	<20	NP-4
	30-77	Stratified very gravelly sand to silt loam.	ML, SM, SP, GP-GM	A-4, A-2, A-1, A-3	0	35-95	30-100	15-85	2-80	<10	NP-4

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
533-------------- Raynham	0-6	Silt loam---------	ML, CL-ML	A-4	0	100	95-100	80-100	55-95	<25	NP-5
	6-16	Silt loam, silt, very fine sandy loam, loamy very fine sand.	ML, CL-ML	A-4	0	100	95-100	80-100	55-95	<25	NP-5
	16-60	Silt loam, silt, very fine sandy loam.	ML, CL-ML	A-4	0	100	95-100	80-100	70-95	<25	NP-5
538A------------- Squamscott	0-4	Loamy fine sand, fine sandy loam.	SM, SW-SM, SP-SM	A-2, A-3, A-4	0	100	95-100	50-85	15-45	---	NP
	4-12	Loamy sand, loamy fine sand, fine sand.	SM, SP-SM	A-2, A-3	0	100	95-100	50-85	5-40	---	NP
	12-19	Sand, fine sand, loamy sand.	SM, SP-SM	A-1, A-2, A-3	0	100	95-100	50-85	5-35	---	NP
	19-65	Silt loam, silty clay loam.	ML, CL-ML	A-4	0	100	95-100	75-90	55-80	<30	NP-5
546A------------- Walpole	0-7	Very fine sandy loam.	SM, ML	A-2, A-4	0-5	90-100	75-100	55-90	25-60	<25	NP-3
	7-16	Sandy loam, fine sandy loam, gravelly sandy loam.	SM	A-2, A-4	0-5	85-100	60-100	40-85	20-50	---	NP
	16-60	Stratified loamy fine sand to very gravelly coarse sand.	SP, SM, GP, GM	A-1, A-2, A-3	0-20	55-100	50-100	25-80	2-30	---	NP
547A, 547B------- Walpole	0-7	Very fine sandy loam.	SM	A-2, A-4	5-10	90-100	75-100	55-85	25-50	<25	NP-3
	7-16	Sandy loam, fine sandy loam, gravelly sandy loam.	SM	A-2, A-4	0-5	85-100	60-100	40-85	20-50	---	NP
	16-60	Stratified loamy fine sand to very gravelly coarse sand.	SP, SM, GP, GM	A-1, A-2, A-3	0-20	55-100	50-100	25-80	2-30	---	NP
597-------------- Westbrook	0-38	Hemic material---	PT	A-8	0	---	---	---	---	---	NP
	38-60	Silt loam, silty clay loam, sandy loam.	SM, ML, CL	A-4, A-6	0	90-100	85-100	65-100	40-100	<40	NP-25
599*: Urban land.											
Hoosic----------- Hoosic	0-8	Gravelly fine sandy loam.	GM, SM, ML	A-1, A-2, A-4	5-10	55-80	50-70	30-70	15-60	30-45	2-10
	8-15	Gravelly sandy loam, very gravelly fine sandy loam, gravelly loam.	GM, SM, GP-GM, SP-SM	A-1, A-2, A-4	5-10	40-75	35-65	20-60	10-45	20-30	2-8
	15-60	Very gravelly coarse sand, very gravelly loamy sand.	GM, GP, SP, SM	A-1	10-15	35-65	30-50	15-40	2-20	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
656A---------- Ridgebury	0-8	Very fine sandy loam.	SM, ML	A-1, A-2, A-4	0-5	80-100	75-95	40-90	20-70	---	NP
	8-21	Sandy loam, gravelly fine sandy loam.	SM, ML	A-1, A-2, A-4	0-15	65-95	55-95	40-80	20-60	---	NP
	21-61	Sandy loam, gravelly fine sandy loam.	SM, ML	A-1, A-2, A-4	0-15	65-95	55-95	35-80	20-60	---	NP
657A, 657B------- Ridgebury	0-8	Very fine sandy loam.	SM, ML	A-2, A-4	0-20	70-100	60-95	45-85	25-65	---	NP
	8-21	Sandy loam, gravelly fine sandy loam.	SM, ML	A-1, A-2, A-4	0-15	65-95	55-95	40-80	20-60	---	NP
	21-61	Sandy loam, gravelly fine sandy loam.	SM, ML	A-1, A-2, A-4	0-15	65-95	55-95	35-80	20-60	---	NP
699*. Urban land											
799*: Urban land.											
Canton----------	0-5	Gravelly fine sandy loam.	SM, ML	A-2, A-4	0-5	80-85	70-75	50-70	30-50	<15	NP-8
	5-21	Fine sandy loam, very fine sandy loam, gravelly fine sandy loam.	SM, ML	A-2, A-4	0-10	80-95	70-90	50-85	30-60	<12	NP-8
	21-60	Gravelly loamy sand, loamy sand, gravelly loamy coarse sand.	SM, SP-SM	A-1, A-2	0-25	65-85	50-90	20-60	10-30	---	NP
997---------- Ipswich	0-15	Hemic material, fibric material.	PT	A-8	0	---	---	---	---	---	NP
	15-63	Sapric material, hemic material.	PT	A-8	0	---	---	---	---	---	NP

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Organic matter
									K	T	
	In	Pct	g/cc	In/hr	In/in	pH	Pct				Pct
12A, 12B, 12C, 12E----------	0-5	4-8	0.90-1.10	6.0-20	0.11-0.18	3.6-6.0	---	Low----------	0.20	3	2-7
Hinckley	5-24	1-5	1.20-1.40	6.0-20	0.01-0.10	3.6-6.0	---	Low----------	0.17		
	24-60	0-3	1.30-1.50	>20	0.01-0.06	3.6-6.0	---	Low----------	0.10		
26A, 26B, 26C, 26E----------	0-12	1-3	1.00-1.20	>6.0	0.09-0.12	4.5-6.0	---	Low----------	0.17	5	2-4
Windsor	12-21	0-3	1.30-1.55	>6.0	0.07-0.10	4.5-6.0	---	Low----------	0.17		
	21-60	0-2	1.40-1.65	>6.0	0.04-0.10	4.5-6.5	---	Low----------	0.10		
29A, 29B----------	0-8	3-12	1.00-1.25	0.6-2.0	0.10-0.20	4.5-6.0	---	Low----------	0.24	3	2-6
Woodbridge	8-22	3-12	1.35-1.60	0.6-2.0	0.08-0.18	4.5-6.0	---	Low----------	0.32		
	22-60	3-12	1.70-2.00	<0.2	0.05-0.10	4.5-6.0	---	Low----------	0.24		
30A, 30B----------	0-4	2-18	1.20-1.50	0.6-2.0	0.18-0.21	4.5-6.0	---	Low----------	0.49	3	2-7
Unadilla	4-30	1-18	1.20-1.50	0.6-2.0	0.17-0.20	4.5-6.0	---	Low----------	0.64		
	30-60	1-3	1.45-1.65	2.0-20	0.01-0.10	5.1-7.8	---	Low----------	0.17		
32A, 32B, 32C----	0-2	20-40	1.05-1.25	0.2-0.6	0.16-0.24	4.5-6.5	---	Low----------	0.32	3	2-6
Boxford	2-13	25-50	1.20-1.45	0.06-0.2	0.15-0.22	4.5-6.5	---	Low----------	0.49		
	13-23	35-50	1.40-1.60	0.06-0.2	0.13-0.15	5.1-7.3	---	Moderate----	0.49		
	23-60	35-50	1.40-1.60	<0.2	0.11-0.15	5.1-7.3	---	Moderate----	0.49		
33A----------	0-6	10-40	1.05-1.25	0.2-2.0	0.14-0.30	4.5-7.3	---	Low----------	0.49	3	2-7
Scitico	6-12	20-60	1.40-1.70	<0.2	0.11-0.21	5.1-7.3	---	Moderate----	0.43		
	12-60	35-60	1.50-1.75	<0.2	0.09-0.21	5.6-7.8	---	Moderate----	0.28		
38A, 38B----------	0-8	1-5	1.40-1.60	6.0-20	0.10-0.18	5.1-7.3	---	Low----------	0.24	3	2-4
Eldridge	8-23	1-5	1.60-1.80	6.0-20	0.06-0.11	5.1-7.3	---	Low----------	0.24		
	23-62	3-18	1.50-1.80	0.06-0.6	0.19-0.21	5.1-7.3	---	Low----------	0.43		
42B, 42C, 42D----	0-5	1-8	0.90-1.20	2.0-6.0	0.11-0.16	3.6-6.0	---	Low----------	0.20	3	1-6
Canton	5-21	1-8	1.20-1.50	2.0-6.0	0.09-0.17	3.6-6.0	---	Low----------	0.28		
	21-60	0-5	1.30-1.50	6.0-20	0.04-0.08	3.6-6.0	---	Low----------	0.17		
43B, 43C, 43D, 43E----------	0-5	1-8	0.90-1.20	2.0-6.0	0.13-0.20	3.6-6.0	---	Low----------	0.20	3	---
Canton	5-21	1-8	1.20-1.50	2.0-6.0	0.09-0.17	3.6-6.0	---	Low----------	0.28		
	21-60	0-5	1.30-1.60	6.0-20	0.04-0.08	3.6-6.0	---	Low----------	0.17		
44B, 44C----------	0-1	6-18	1.00-1.25	0.6-6.0	0.10-0.14	3.6-6.0	---	Low----------	0.24	3	1-6
Montauk	1-30	6-18	1.30-1.60	0.6-6.0	0.10-0.16	3.6-6.0	<2	Low----------	0.24		
	30-61	1-18	1.70-1.90	0.06-0.6	0.02-0.08	3.6-6.0	<2	Low----------	0.24		
45B, 45C, 45D----	0-1	6-18	1.00-1.25	0.6-6.0	0.10-0.14	3.6-6.0	---	Low----------	0.24	3	---
Montauk	1-30	6-18	1.30-1.60	0.6-6.0	0.10-0.16	3.6-6.0	---	Low----------	0.24		
	30-61	1-18	1.70-1.90	0.06-0.6	0.02-0.08	3.6-6.0	---	Low----------	0.24		
62B, 62C----------	0-4	3-8	1.00-1.25	0.6-6.0	0.08-0.23	4.5-6.0	---	Low----------	0.24	3	2-5
Charlton	4-20	3-8	1.40-1.65	0.6-6.0	0.07-0.20	4.5-6.0	---	Low----------	0.24		
	20-60	1-8	1.45-1.70	0.6-6.0	0.05-0.16	4.5-6.0	---	Low----------	0.24		
63B, 63C, 63D----	0-4	3-8	1.00-1.25	0.6-6.0	0.08-0.23	4.5-6.0	---	Low----------	0.20	3	---
Charlton	4-20	3-8	1.40-1.65	0.6-6.0	0.07-0.20	4.5-6.0	---	Low----------	0.24		
	20-60	1-8	1.45-1.70	0.6-6.0	0.05-0.16	4.5-6.0	---	Low----------	0.24		

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Organic matter
									K	T	
	In	Pct	g/cc	In/hr	In/in	pH	Pct				Pct
66B, 66C, 66D----	0-7	3-12	1.00-1.25	0.6-2.0	0.10-0.20	4.5-6.0	---	Low----------	0.24	3	2-5
Paxton	7-18	3-12	1.35-1.60	0.6-2.0	0.08-0.18	4.5-6.0	---	Low----------	0.32		
	18-60	3-12	1.70-2.00	<0.2	0.05-0.12	4.5-6.0	---	Low----------	0.24		
67B, 67C, 67D, 67E----------	0-7	3-12	1.00-1.25	0.6-2.0	0.08-0.18	4.5-6.0	---	Low----------	0.20	3	---
Paxton	7-18	3-12	1.35-1.60	0.6-2.0	0.08-0.18	4.5-6.0	---	Low----------	0.32		
	18-60	3-12	1.70-2.00	<0.2	0.05-0.12	4.5-6.0	---	Low----------	0.24		
97*:											
Greenwood-------	0-60	---	0.10-0.25	0.6-6.0	0.45-0.55	3.6-5.0	---	----------	---	---	---
Ossipee---------	0-20	---	0.15-0.25	0.6-6.0	0.45-0.60	3.6-4.4	---	----------	---	---	80-95
	20-26	---	0.15-0.25	0.6-6.0	0.45-0.60	3.6-4.4	---	----------	---		
	26-60	5-35	1.20-1.50	0.2-2.0	0.11-0.19	5.1-6.5	---	Low----------	---		
115----------	0-12	---	0.55-0.75	6.0-20	0.20-0.45	4.5-7.3	---	----------	---	5	---
Scarboro	12-16	1-5	1.15-1.35	>6.0	0.04-0.13	4.5-7.3	---	Low----------	0.17		
	16-60	0-2	1.35-1.55	>6.0	0.01-0.13	4.5-7.3	---	Low----------	0.10		
125----------	0-12	---	0.55-0.75	6.0-20	0.17-0.42	4.5-7.3	---	Low----------	---	5	---
Scarboro	12-16	1-5	1.15-1.35	>6.0	0.04-0.13	4.5-7.3	---	Low----------	0.17		
	16-60	0-2	1.35-1.55	>6.0	0.01-0.13	4.5-7.3	---	Low----------	0.10		
129B, 129C-------	0-8	3-12	1.00-1.25	0.6-2.0	0.08-0.20	4.5-6.0	---	Low----------	0.20	3	---
Woodbridge	8-22	3-12	1.35-1.60	0.6-2.0	0.08-0.18	4.5-6.0	---	Low----------	0.32		
	22-60	3-12	1.70-2.00	<0.2	0.05-0.12	4.5-6.0	---	Low----------	0.24		
134----------	0-9	20-35	1.00-1.30	0.2-0.6	0.12-0.30	5.1-6.0	---	Low----------	0.32	5	3-10
Maybid	9-26	20-55	1.40-1.60	<0.2	0.09-0.17	5.6-7.3	---	Moderate-----	0.43		
	26-63	35-55	1.40-1.60	<0.2	0.09-0.18	6.1-7.3	---	Moderate-----	0.49		
140B*, 140C*, 140D*:											
Chatfield------	0-20	7-18	1.10-1.40	0.6-6.0	0.08-0.14	4.5-6.0	---	Low----------	0.20	3	---
	20-31	7-18	1.20-1.50	0.6-6.0	0.08-0.18	4.5-6.0	---	Low----------	0.20		
	31	---	---	---	---	---	---	----------	---		
Hollis---------	0-2	3-10	1.10-1.40	0.6-6.0	0.10-0.18	4.5-6.0	---	Low----------	0.17	1	---
	2-13	1-8	1.30-1.55	0.6-6.0	0.06-0.18	4.5-6.0	---	Low----------	0.32		
	13	---	---	---	---	---	---	----------	---		
Canton---------	0-5	1-8	0.90-1.20	2.0-6.0	0.13-0.20	3.6-6.0	---	Low----------	0.20	3	---
	5-21	1-8	1.20-1.50	2.0-6.0	0.09-0.17	3.6-6.0	---	Low----------	0.28		
	21-60	0-5	1.30-1.60	6.0-20	0.04-0.08	3.6-6.0	---	Low----------	0.17		
141E*:											
Hollis----------	0-2	3-10	1.10-1.40	0.6-6.0	0.10-0.18	4.5-6.0	---	Low----------	0.17	1	---
	2-13	1-8	1.30-1.55	0.6-6.0	0.06-0.18	4.5-6.0	---	Low----------	0.32		
	13	---	---	---	---	---	---	----------	---		
Rock outcrop.											
Chatfield-------	0-20	7-18	1.10-1.40	0.6-6.0	0.08-0.14	4.5-6.0	---	Low----------	0.20	3	---
	20-31	7-18	1.20-1.50	0.6-6.0	0.08-0.18	4.5-6.0	---	Low----------	0.20		
	31	---	---	---	---	---	---	----------	---		
295----------	0-60	---	0.10-0.25	0.6-6.0	0.45-0.55	3.6-5.0	---	----------	---	---	---
Greenwood											

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Organic matter
									K	T	
	In	Pct	g/cc	In/hr	In/in	pH	Pct				Pct
298*. Pits											
299. Udorthents											
305*:											
Lim	0-8	3-15	1.10-1.40	0.6-2.0	0.20-0.28	4.5-7.3	---	Low	0.49	3	2-8
	8-38	3-15	1.20-1.50	0.6-2.0	0.18-0.26	5.1-7.3	---	Low	0.49		
	38-44	1-8	1.20-1.50	0.6-2.0	0.10-0.18	5.1-7.3	---	Low	0.24		
	44-60	0-3	1.30-1.60	>6.0	0.01-0.10	5.1-7.3	---	Low	0.17		
Pootatuck	0-4	2-6	1.10-1.35	0.6-6.0	0.11-0.21	4.5-6.5	---	Low	0.20	5	2-6
	4-26	1-6	1.20-1.45	0.6-6.0	0.09-0.18	4.5-6.5	---	Low	0.20		
	26-60	0-2	1.25-1.50	>6.0	0.01-0.10	4.5-6.5	---	Low	0.17		
313A, 313B	0-8	2-7	0.95-1.10	2.0-6.0	0.12-0.23	4.5-6.5	---	Low	0.24	5	1-4
Deerfield	8-21	1-7	1.20-1.45	6.0-20	0.01-0.13	4.5-6.5	---	Low	0.17		
	21-60	0-5	1.40-1.50	>6.0	0.01-0.08	4.5-6.5	---	Low	0.17		
314A	0-6	2-12	1.20-1.60	6.0-20	0.07-0.10	4.5-7.3	---	Low	0.15	5	3-4
Pipestone	6-33	2-12	1.20-1.60	6.0-20	0.06-0.09	4.5-7.3	---	Low	0.17		
	33-60	2-12	1.20-1.60	6.0-20	0.05-0.07	5.1-7.3	---	Low	0.17		
343C, 343D	0-5	1-8	0.90-1.20	2.0-6.0	0.11-0.17	3.6-6.0	---	Low	0.20	3	---
Canton	5-21	1-8	1.20-1.50	2.0-6.0	0.09-0.17	3.6-6.0	---	Low	0.28		
	21-60	0-5	1.30-1.60	6.0-20	0.04-0.08	3.6-6.0	---	Low	0.17		
395	0-25	---	0.15-0.25	0.6-6.0	0.45-0.60	3.6-5.0	---	---	---	---	80-95
Chocorua	25-60	1-5	1.20-1.50	>6.0	0.01-0.11	4.5-6.0	---	Low	0.17		
397	0-15	---	0.10-0.30	0.6-20	0.18-0.35	5.1-7.8	2.0-3.0	---	---	---	---
Ipswich	15-63	---	0.10-0.30	0.6-20	0.18-0.35	5.1-7.8	2.0-3.0	---	---		
446A*, 446B*:											
Scituate	0-8	4-10	1.00-1.30	0.6-2.0	0.11-0.21	3.6-6.0	---	Low	0.24	3	2-6
	8-32	2-9	1.25-1.50	0.6-2.0	0.09-0.16	4.5-6.0	---	Low	0.24		
	32-60	2-9	1.75-2.00	0.06-0.2	0.01-0.07	4.5-6.0	---	Low	0.24		
Newfields	0-9	1-8	0.80-1.20	0.6-2.0	0.15-0.21	3.6-6.5	---	Low	0.28	3	1-5
	9-35	1-8	1.20-1.45	0.6-2.0	0.09-0.17	3.6-6.5	---	Low	0.28		
	35-64	1-5	1.30-1.60	0.6-2.0	0.04-0.08	3.6-6.5	---	Low	0.17		
447A*, 447B*, 447C*:											
Scituate	0-8	4-10	1.00-1.30	0.6-2.0	0.09-0.18	3.6-6.0	---	Low	0.17	3	---
	8-32	2-9	1.25-1.50	0.6-2.0	0.09-0.16	4.5-6.0	---	Low	0.24		
	32-60	2-5	1.75-2.00	0.06-0.2	0.01-0.07	4.5-6.0	---	Low	0.24		
Newfields	0-9	1-8	0.80-1.20	0.6-2.0	0.14-0.20	3.6-6.5	---	Low	0.24	3	---
	9-35	1-8	1.20-1.45	0.6-2.0	0.09-0.17	3.6-6.5	---	Low	0.28		
	35-64	1-5	1.30-1.60	0.6-2.0	0.04-0.08	3.6-6.5	---	Low	0.17		
460B, 460C	0-11	5-10	1.00-1.20	0.6-2.0	0.07-0.23	5.6-7.3	---	Low	0.20	3	2-6
Pennichuck	11-25	5-10	1.20-1.40	0.6-2.0	0.05-0.17	5.6-7.3	---	Low	0.32		
	25-36	2-10	1.30-1.60	0.6-2.0	0.02-0.14	5.6-7.3	---	Low	0.24		
	36	---	---	---	---	---	---	---	---		
495	0-20	---	0.15-0.25	0.6-6.0	0.45-0.60	3.6-4.4	---	---	---	---	80-95
Ossipee	20-26	---	0.15-0.25	0.6-6.0	0.45-0.60	3.6-4.4	---	---	---		
	26-60	5-35	1.20-1.50	0.2-2.0	0.11-0.19	5.1-6.5	---	Low	---		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Organic matter
									K	T	
	In	Pct	g/cc	In/hr	In/in	pH	Pct				Pct
497	0-35	---	0.10-0.70	0.6-20	0.18-0.36	5.1-7.8	2.0-3.0	---	---	---	20-90
Pawcatuck	35-60	0-2	1.45-1.70	>20	0.02-0.13	5.1-7.8	2.0-3.0	Low	0.10		
510A, 510B, 510C, 510D	0-8	1-10	1.10-1.40	2.0-20	0.05-0.12	4.5-5.5	---	Low	0.17	3-2	2-6
Hoosic	8-15	1-10	1.25-1.55	2.0-20	0.05-0.11	4.5-5.5	---	Low	0.17		
	15-60	0-5	1.45-1.65	>20	0.01-0.05	4.5-6.0	---	Low	0.17		
531B	0-8	2-15	1.20-1.50	0.6-2.0	0.18-0.21	3.6-5.5	---	Low	0.49	3	2-8
Scio	8-30	2-15	1.20-1.50	0.6-2.0	0.17-0.20	3.6-5.5	---	Low	0.64		
	30-77	0-5	1.45-1.65	2.0-20	0.02-0.19	4.5-7.8	---	Low	0.17		
533	0-6	3-16	1.20-1.50	0.2-2.0	0.18-0.24	5.1-7.3	---	Low	0.49	3	3-10
Raynham	6-16	3-16	1.20-1.50	0.2-2.0	0.18-0.22	5.1-7.3	---	Low	0.64		
	16-60	3-16	1.20-1.60	0.06-0.2	0.17-0.21	5.6-7.8	---	Low	0.64		
538A	0-4	1-5	1.20-1.50	6.0-20	0.08-0.12	3.8-7.3	---	Low	0.24	3	1-5
Squamscott	4-12	1-5	1.30-1.50	6.0-20	0.04-0.10	3.8-7.3	---	Low	0.17		
	12-19	1-5	1.30-1.50	6.0-20	0.04-0.10	3.8-7.3	---	Low	0.17		
	19-65	22-35	1.30-1.70	0.06-0.6	0.12-0.22	3.8-7.3	---	Low	0.49		
546A	0-7	2-6	1.00-1.25	2.0-6.0	0.10-0.18	4.5-7.3	---	Low	0.20	3	2-8
Walpole	7-16	2-6	1.30-1.55	2.0-6.0	0.07-0.15	4.5-7.3	---	Low	0.24		
	16-60	0-2	1.40-1.65	>6.0	0.01-0.10	4.5-7.3	---	Low	0.10		
547A, 547B	0-7	2-6	1.00-1.25	2.0-6.0	0.10-0.18	4.5-7.3	---	Low	0.20	3	2-8
Walpole	7-16	2-6	1.30-1.55	2.0-6.0	0.07-0.15	4.5-7.3	---	Low	0.24		
	16-60	0-2	1.40-1.65	>6.0	0.01-0.10	4.5-7.3	---	Low	0.10		
597	0-38	---	0.10-0.70	0.6-20	0.18-0.36	5.1-7.8	2.0-3.0	---	---	---	20-90
Westbrook	38-60	2-35	1.25-1.50	<2.0	0.10-0.26	5.1-7.8	2.0-3.0	Low	0.64		
599*:											
Urban land.											
Hoosic	0-8	1-10	1.10-1.40	2.0-20	0.05-0.12	4.5-5.5	---	Low	0.17	3-2	2-6
	8-15	1-10	1.25-1.55	2.0-20	0.05-0.11	4.5-5.5	---	Low	0.17		
	15-60	0-5	1.45-1.65	>20	0.01-0.05	4.5-6.0	---	Low	0.17		
656A	0-8	3-10	1.00-1.30	0.6-6.0	0.06-0.24	4.5-6.5	---	Low	0.24	3	4-7
Ridgebury	8-21	2-8	1.60-1.90	0.6-6.0	0.04-0.20	4.5-6.5	---	Low	0.32		
	21-61	2-8	1.80-2.00	<0.2	0.01-0.05	4.5-6.5	---	Low	0.24		
657A, 657B	0-8	3-10	1.00-1.30	0.6-6.0	0.06-0.24	4.5-6.5	---	Low	0.20	3	---
Ridgebury	8-21	2-8	1.60-1.90	0.6-6.0	0.04-0.20	4.5-6.5	---	Low	0.32		
	21-61	2-8	1.80-2.00	<0.2	0.01-0.05	4.5-6.5	---	Low	0.24		
699*.											
Urban land											
799*:											
Urban land.											
Canton	0-5	1-8	0.90-1.20	2.0-6.0	0.11-0.16	3.6-6.0	---	Low	0.20	3	1-6
	5-21	1-8	1.20-1.50	2.0-6.0	0.09-0.17	3.6-6.0	---	Low	0.28		
	21-60	0-5	1.30-1.50	6.0-20	0.04-0.08	3.6-6.0	---	Low	0.17		
997	0-15	---	0.10-0.30	0.6-20	0.18-0.35	5.1-7.8	0.5-0.9	---	---	---	---
Ipswich	15-63	---	0.10-0.30	0.6-20	0.18-0.35	5.1-7.8	1.0-2.5	---			

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

("Flooding" and "water table" and terms such as "frequent," "brief," "moderate," and "high" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydrologic group	Flooding			High water table		Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft		In				
12A, 12B, 12C, 12E--Hinckley	A	None	---	---	>6.0	---	>60	---	Low	Low	High.
26A, 26B, 26C, 26E--Windsor	A	None	---	---	>6.0	---	>60	---	Low	Low	High.
29A, 29B--Woodbridge	C	None	---	---	1.5-2.5	Nov-May	>60	---	High	Low	Moderate.
30A, 30B--Unadilla	B	None	---	---	>6.0	---	>60	---	High	Low	Moderate.
32A, 32B, 32C--Boxford	C	None	---	---	1.0-3.0	Nov-Apr	>60	---	High	High	Moderate.
33A--Scitico	C	None	---	---	0-1.0	Nov-May	>60	---	High	High	Moderate.
38A, 38B--Eldridge	C	None	---	---	1.0-2.0	Nov-May	>60	---	Moderate	Moderate	High.
42B, 42C, 42D, 43B, 43C, 43D, 43E--Canton	B	None	---	---	>6.0	---	>60	---	Low	Low	High.
44B, 44C, 45B, 45C, 45D--Montauk	C	None	---	---	2.0-2.5	Feb-May	>60	---	Moderate	Low	High.
62B, 62C, 63B, 63C, 63D--Charlton	B	None	---	---	>6.0	---	>60	---	Low	Low	High.
66B, 66C, 66D, 67B, 67C, 67D, 67E--Paxton	C	None	---	---	1.5-2.5	Feb-Apr	>60	---	Moderate	Low	Moderate.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft		In				
97*:											
Greenwood	D	None	---	---	+4-+1	Jan-Dec	>60	---	High	High	High.
Ossipee	D	None	---	---	+4-+1	Jan-Dec	>60	---	High	Moderate	High.
115, 125 Scarboro	D	None	---	---	+1-1.0	Jan-Dec	>60	---	High	High	High.
129B, 129C Woodbridge	C	None	---	---	1.5-2.5	Nov-May	>60	---	High	Low	Moderate.
134 Maybid	D	None	---	---	+1-0.5	Oct-Aug	>60	---	High	High	Moderate.
140B*, 140C*, 140D*:											
Chatfield	B	None	---	---	>6.0	---	20-40	Hard	Moderate	Low	Moderate.
Hollis	D	None	---	---	>6.0	---	10-20	Hard	Moderate	Low	High.
Canton	B	None	---	---	>6.0	---	>60	---	Low	Low	High.
141E*:											
Hollis	D	None	---	---	>6.0	---	10-20	Hard	Moderate	Low	High.
Rock outcrop.											
Chatfield	B	None	---	---	>6.0	---	20-40	Hard	Moderate	Low	Moderate.
295 Greenwood	D	None	---	---	+1-0.5	Jan-Dec	>60	---	High	High	High.
298*. Pits											
299. Udorthents											
305*:											
Lim	C	Frequent	Brief	Nov-Apr	0-1.5	Sep-Jun	>60	---	High	High	Moderate.
Pootatuck	B	Frequent	Brief	Nov-Apr	1.5-2.5	Nov-Apr	>60	---	Moderate	Moderate	Moderate.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft		In				
313A, 313B-------- Deerfield	B	None---------	---	---	1.5-3.0	Dec-Apr	>60	---	Moderate---	Low------	High.
314A-------------- Pipestone	B	None---------	---	---	0.5-1.5	Oct-Jun	>60	---	Moderate---	Low------	Moderate.
343C, 343D-------- Canton	B	None---------	---	---	>6.0	---	>60	---	Low--------	Low------	High.
395--------------- Chocorua	D	None---------	---	---	+1-0.5	Jan-Dec	>60	---	High-------	Moderate	High.
397--------------- Ipswich	D	Frequent----	Very brief	Jan-Dec	+1-0	Jan-Dec	>60	---	High-------	High-----	High.
446A*, 446B*, 447A*, 447B*, 447C* Scituate---------	C	None---------	---	---	1.5-3.0	Nov-May	>60	---	Moderate---	Low------	High.
Newfields-------	B	None---------	---	---	2.0-4.0	Nov-May	>60	---	Moderate---	Moderate	High.
460B, 460C-------- Pennichuck	B	None---------	---	---	>6.0	---	20-40	Hard	Low--------	Low------	High.
495--------------- Ossipee	D	None---------	---	---	+1-0.5	Jan-Dec	>60	---	High-------	Moderate	High.
497--------------- Pawcatuck	D	Frequent----	Very brief	Jan-Dec	+1-0	Jan-Dec	>60	---	High-------	High-----	High.
510A, 510B, 510C, 510D------------- Hoosic	A	None---------	---	---	>6.0	---	>60	---	Low--------	Low------	High.
531B-------------- Scio	B	None---------	---	---	1.5-2.0	Mar-May	>60	---	High-------	Moderate	Moderate.
533--------------- Raynham	C	None---------	---	---	0.5-2.0	Nov-May	>60	---	High-------	High-----	Moderate.
538A-------------- Squamscott	C	None---------	---	---	0-1.0	Nov-May	>60	---	High-------	High-----	High.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft		In				
546A, 547A, 547B--Walpole	C	None	---	---	0-1.0	Nov-May	>60	---	High	Low	Moderate.
597--Westbrook	D	Frequent	Very brief	Jan-Dec	+1-0	Jan-Dec	>60	---	High	High	High.
599*: Urban land.											
Hoosic	A	None	---	---	>6.0	---	>60	---	Low	Low	High.
656A, 657A, 657B--Ridgebury	C	None	---	---	0-1.5	Oct-Jun	>60	---	High	High	High.
699*. Urban land											
799*: Urban land.											
Canton	B	None	---	---	>6.0	---	>60	---	Low	Low	High.
997--Ipswich	D	Frequent	Very brief	Jan-Dec	+1-0	Jan-Dec	>60	---	High	High	High.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Boxford	Fine, mixed, mesic Aquic Dystric Eutrochrepts
Canton	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Typic Dystrochrepts
Charlton	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Chatfield	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Chocorua	Sandy or sandy-skeletal, mixed, dysic Terric Borohemists
Deerfield	Mixed, mesic Aquic Udipsamments
Eldridge	Sandy over loamy, mixed, nonacid, mesic Aquic Udorthents
Greenwood	Dysic Typic Borohemists
Hinckley	Sandy-skeletal, mixed, mesic Typic Udorthents
Hollis	Loamy, mixed, mesic Lithic Dystrochrepts
Hoosic	Sandy-skeletal, mixed, mesic Typic Dystrochrepts
Ipswich	Euic, mesic Typic Sulfihemists
Lim	Coarse-loamy, mixed, nonacid, mesic Aeric Fluvaquents
Maybid	Fine, illitic, nonacid, mesic Typic Humaquepts
Montauk	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Newfields	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Typic Dystrochrepts
Ossipee	Loamy, mixed, dysic Terric Borohemists
Pawcatuck	Sandy or sandy-skeletal, mixed, euic, mesic Terric Sulfihemists
Paxton	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Pennichuck	Loamy-skeletal, mixed, mesic Dystric Eutrochrepts
Pipestone	Sandy, mixed, mesic Entic Haplaquods
Pootatuck	Coarse-loamy, mixed, mesic Fluvaquentic Dystrochrepts
Raynham	Coarse-silty, mixed, nonacid, mesic Aeric Haplaquepts
Ridgebury	Coarse-loamy, mixed, nonacid, mesic Aeric Haplaquepts
Scarboro	Sandy, mixed, mesic Histic Humaquepts
Scio	Coarse-silty, mixed, mesic Aquic Dystrochrepts
Scitico	Fine, mixed, nonacid, mesic Typic Haplaquepts
Scituate	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Squamscott	Sandy over loamy, mixed, mesic Entic Haplaquods
Unadilla	Coarse-silty, mixed, mesic Typic Dystrochrepts
Walpole	Sandy, mixed, mesic Aeric Haplaquepts
Westbrook	Loamy, mixed, euic, mesic Terric Sulfihemists
Windsor	Mixed, mesic Typic Udipsamments
Woodbridge	Coarse-loamy, mixed, mesic Aquic Dystrochrepts

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