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 1

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 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.

Cover: An area of Ipswich soils adjacent to a tidal creek. Eldridge and Scitico soils are in the higher areas.

Contents—Part 1

Issued October 1994

Numeric Index to Map Units

Alphabetic Index to Map Units

Foreword

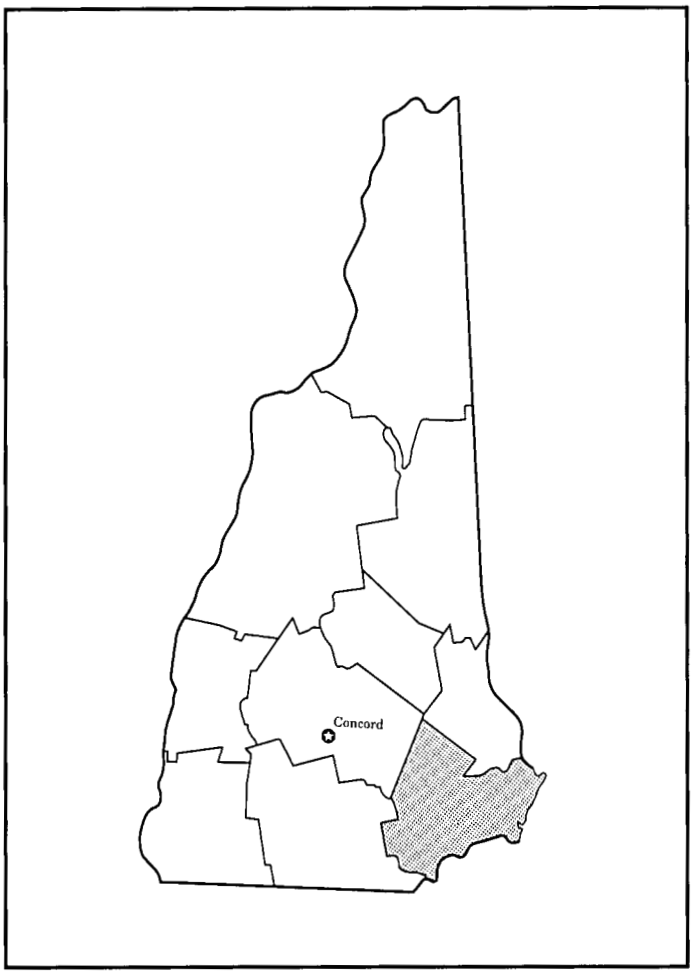
This soil survey contains information that can be used in land-planning programs in Rockingham County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

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

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

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

Dawn W. Genes
State Conservationist
Soil Conservation Service



Location of Rockingham County in New Hampshire.

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

ROCKINGHAM COUNTY is in the southeastern part of New Hampshire. It has an area of 441,984 acres, or about 690 square miles. Exeter, the county seat, is in the east-central part of the county.

The eastern part of the county is characterized by Atlantic Ocean coastline, tidal rivers, tidal marshes, and soils that formed in marine sediments. The inland part of the county is characterized by hills, low mountains, and soils that formed in glacial till. Elevation ranges from sea level to 1,350 feet above sea level. The highest point is at the top of Nottingham Mountain.

This soil survey updates the survey of Rockingham County published in 1959 *(12)*. It provides more detailed information than the previous survey.

How This Survey Was Made

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

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

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

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind

and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

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

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

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by two or three kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. These latter soils are called inclusions or included soils.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soil on the landscape.

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

Detailed Soil Map Units

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

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

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

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

Soils of one series can differ in texture of the surface layer or of the substratum. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases.* Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Paxton fine sandy loam, 3 to 8 percent slopes, very stony, is a phase of the Paxton series.

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

A *soil complex* consists of two or more soils, or one or more soils and a miscellaneous area, in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Scituate-Newfields complex, 0 to 3 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in the mapped areas are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Greenwood and Ossipee soils, ponded, is an undifferentiated group in this survey area.

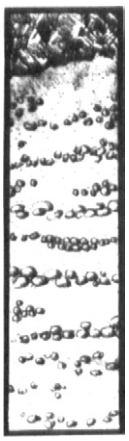
Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas.* Such areas have little or no soil material and support little or no vegetation. Urban land is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

The "Glossary" defines many of the terms used in describing the soils.

12A—Hinckley fine sandy loam, 0 to 3 percent slopes. This nearly level soil is on the tops of terraces adjacent to streams or is on broad plains. Areas are long and narrow or irregularly shaped and are 4 to 40 acres in size.

A generalized profile of this soil is as follows:



Surface Layer:
dark brown fine sandy loam

Subsoil:
yellowish brown very gravelly loamy sand

Substratum:
pale brown very gravelly coarse sand

In some areas fine sandy loam extends deeper into the soil profile.

Inclusions make up about 10 percent of the map unit. Among these are Windsor soils in scattered areas throughout the map unit and Deerfield soils in swales.

Soil features affecting use—

Drainage class: excessively drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: rapid or very rapid
Available water capacity: very low
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. The soil is a source of sand and gravel.

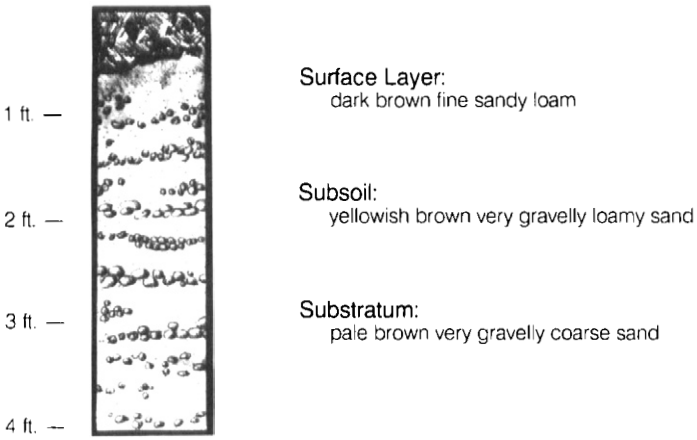
This soil is suited to cultivated crops and forage species, but it is droughty during the summer. Adding organic matter, such as manure or crop residue, can increase the available water capacity. Plants that are adapted to dry soil conditions should be selected for planting. Certain crops, such as vegetables, may require irrigation during dry summers to maintain yields. Because of the summer droughtiness, the soil is most productive as pasture in early spring.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Management that favors the regeneration of white pine includes cuttings in which only a portion of the trees are harvested. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as thinning and pruning. Because the soil is droughty, the trees can be harvested any time of the year, even in spring.

This soil is well suited to urban development. Because of the sandy texture, it is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too fast to be adequately purified before reaching the water table. Care must be taken in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading the slopes can keep the banks from collapsing. Lawns may require irrigation during dry summers, when the soil is droughty. Incorporating organic material, such as plant residue or manure, into the soil can increase the available water capacity. Mulching and frequent watering may be required in disturbed areas.

12B—Hinckley fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is on low rises at the base of hills and on low ridges. Areas are long and narrow or irregularly shaped and are 4 to 100 acres in size.

A generalized profile of this soil is as follows:



In some areas fine sandy loam extends deeper into the soil profile.

Inclusions make up about 15 percent of the map unit. Among these are Windsor soils in scattered areas throughout the map unit and Deerfield soils in hollows. Also included, especially along the major streams in Candia, Fremont, and Windham, are areas where the depth to bedrock is less than 60 inches.

Soil features affecting use—

Drainage class: excessively drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: rapid or very rapid
Available water capacity: very low
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. The soil is a source of sand and gravel.

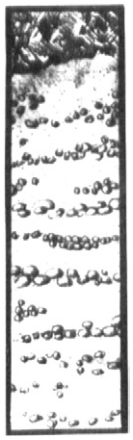
This soil is suited to cultivated crops and forage species, but it is droughty during the summer. Adding organic material, such as manure or crop residue, can increase the available water capacity. Plants that are adapted to dry soil conditions should be selected for planting. Certain crops, such as vegetables, may require irrigation during dry summers to maintain yields. Because of the summer droughtiness, the soil is most productive as pasture in early spring. Because of the slope, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Management that favors the regeneration of white pine includes cuttings in which only a portion of the trees are harvested. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as thinning and pruning. Because the soil is droughty, the trees can be harvested any time of the year, even in spring.

This soil is well suited to urban development. Because of the sandy texture, however, it is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too fast to be adequately purified before reaching the water table. Care must be taken in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading the slopes can keep the banks from collapsing. Lawns may require irrigation during dry summers, when the soil is droughty. Incorporating organic material, such as plant residue or manure, into the soil can increase the available water capacity. Mulching and frequent watering may be required in disturbed areas. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover.

12C—Hinckley fine sandy loam, 8 to 15 percent slopes. This strongly sloping soil is at the base of hills or on knolls and ridges that in most places are adjacent to the major streams. Areas are irregularly shaped and are 10 to 50 acres in size.

A generalized profile of this soil is as follows:



Surface Layer:
dark brown fine sandy loam

Subsoil:
yellowish brown very gravelly loamy sand

Substratum:
pale brown very gravelly coarse sand

In some areas fine sandy loam extends deeper into the soil profile.

Inclusions make up about 20 percent of the map unit. Among these are Windsor soils in scattered areas throughout the map unit and Canton and Chatfield soils on knolls and at the margins of the map unit, adjacent to hills. Also included are soils that have slopes of less than 8 percent or more than 15 percent.

Soil features affecting use—

Drainage class: excessively drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: rapid or very rapid
Available water capacity: very low
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. The soil is a source of sand and gravel.

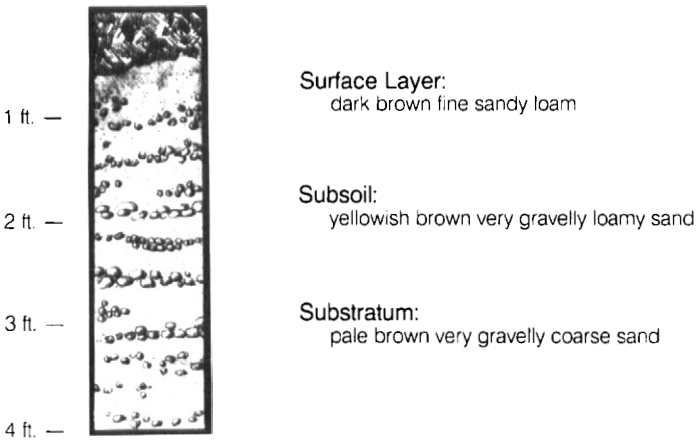
This soil is poorly suited to cultivated crops and forage species. It is droughty during the summer. Adding organic material, such as manure or crop residue, can increase the available water capacity. Plants that are adapted to dry soil conditions should be selected for planting. Certain crops, such as vegetables, may require irrigation during dry summers to maintain yields. Because of the summer droughtiness, the soil is most productive as pasture in early spring. Erosion and the slope are management concerns. In areas used for corn silage, erosion can be controlled by a system of conservation tillage, such as no-till farming, or by contour stripcropping in combination with short rotations. In areas where row crops, such as vegetables, are grown year after year, the slope length generally should be reduced by some structure, such as a terrace or a diversion, if erosion is to be controlled. Because of the slope, care is needed in operating some types of farm machinery.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Management that favors the regeneration of white pine includes cuttings in which only a portion of the trees are harvested. Scarifying the surface after the trees are harvested can help pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as pruning. Because the soil is droughty, the trees can be harvested any time of the year, even in spring. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development. Because of the sandy texture, however, it is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too fast to be adequately purified before reaching the water table. Because of the slope, cutting and filling are needed to level sites for septic tank absorption fields. Care must be taken in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading the slopes can keep the banks from collapsing. Lawns may require irrigation during dry summers, when the soil is droughty. Incorporating organic material, such as plant residue or manure, into the soil can increase the available water capacity. Mulching and frequent watering may be required in disturbed areas. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover.

12E—Hinckley fine sandy loam, 15 to 60 percent slopes. This moderately steep to very steep soil is on ridges and terrace escarpments. Areas are long and narrow and are 3 to 30 acres in size.

A generalized profile of this soil is as follows:



Inclusions make up about 5 percent of the map unit. Among these are Windsor soils and soils that have slopes of less than 15 percent.

Soil features affecting use—

Drainage class: excessively drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: rapid or very rapid
Available water capacity: very low
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. The soil is a source of sand and gravel.

This soil is generally unsuited to cultivated crops and forage species because of droughtiness, erosion, and the slope. Plants that provide a permanent protective cover and are adapted to dry soil conditions should be maintained on this soil. Because of the slope, operating most types of farm machinery is impractical and hazardous.

This soil is suited to woodland. The most common trees are eastern white pine, red pine, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Management that favors the regeneration of white pine includes cuttings in which only a portion of the trees are harvested. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as pruning. Because the soil is droughty, the trees can be harvested any time of the year, even in spring. On the steeper slopes, where a skidder may overturn, winching may be the only way to remove logs that have been felled. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as benching of logging roads into the hillside, water bars, stone fords, culverts, roadside ditches, and a permanent plant cover.

This soil is very poorly suited to urban development because of the slope.

26A—Windsor loamy sand, 0 to 3 percent slopes. This nearly level soil is on broad plains and broad, low hilltops. Areas are irregularly shaped and are 4 to 80 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown loamy sand

Subsoil:
yellowish brown sand

Substratum:
light yellowish brown sand

In some areas the soil has more gravel.

Inclusions make up about 10 percent of the map unit. Among these are Deerfield soils in hollows and, in the seacoast region, soils that have a loamy substratum, mottles, or both below a depth of 50 inches.

Soil features affecting use—

Drainage class: excessively drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: rapid
Available water capacity: very low
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for urban development. The soil is a source of sand.

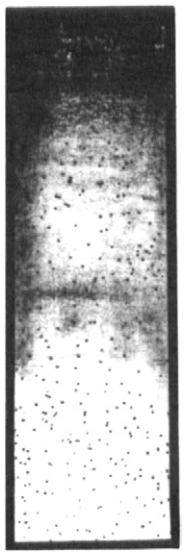
This soil is suited to cultivated crops and forage species, but it is droughty during the summer. Adding organic material, such as manure or crop residue, can increase the available water capacity. Plants that are adapted to dry soil conditions should be selected for planting. Certain crops, such as vegetables, may require irrigation during dry summers to maintain yields. Because of the summer droughtiness, the soil is most productive as pasture in early spring.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Management that favors the regeneration of white pine includes cuttings in which only a portion of the trees are harvested. Scarifying the surface after the trees are harvested can help pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as pruning. Because the soil is droughty, the trees can be harvested any time of the year, even in spring.

This soil is well suited to urban development. Because of the sandy texture, however, it is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too fast to be adequately purified before reaching the water table. Care must be taken in excavating the soil because steep cutbanks frequently cave in. Adding retaining walls or grading the slopes can keep the banks from collapsing. Lawns may require irrigation during dry summers, when the soil is droughty. Incorporating organic material, such as plant residue or manure, into the soil can increase the available water capacity. Mulching and frequent watering may be required in disturbed areas.

26B—Windsor loamy sand, 3 to 8 percent slopes. This gently sloping soil is on broad plains, on low hills, and on benches or knolls at the base of hills adjacent to the major streams. Areas are irregularly shaped and are 4 to 200 acres in size.

A generalized profile of this soil is as follows:



In some areas the soil has more gravel.

Inclusions make up about 15 percent of the map unit. Among these are Deerfield soils in hollows; Windsor soils that have slopes of less than 3 percent or more than 8 percent; and, in the seacoast region, soils that have a loamy substratum, mottles, or both below a depth of 50 inches.

Soil features affecting use—

Drainage class: excessively drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: rapid
Available water capacity: very low
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for urban development. The soil is a source of sand.

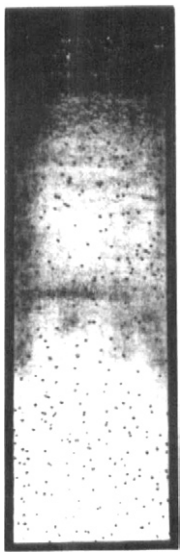
This soil is suited to cultivated crops and forage species, but it is droughty during the summer. Adding organic material, such as manure or crop residue, can increase the available water capacity. Plants that are adapted to dry soil conditions should be selected for planting. Certain crops, such as vegetables, may require irrigation during dry summers to maintain yields. Because of the summer droughtiness, the soil is most productive as pasture in early spring. Because of the slope, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Management that favors the regeneration of white pine includes cuttings in which only a portion of the trees are harvested. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as pruning. Because the soil is droughty, the trees can be harvested any time of the year, even in spring.

This soil is well suited to urban development. Because of the sandy texture, however, it is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too fast to be adequately purified before reaching the water table. Care must be taken in excavating the soil because steep cutbanks frequently cave in. Adding retaining walls or grading the slopes can keep the banks from collapsing. Lawns may require irrigation during dry summers, when the soil is droughty. Incorporating organic material, such as plant residue or manure, into the soil can increase the available water capacity. Mulching and frequent watering may be required in disturbed areas. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover.

26C—Windsor loamy sand, 8 to 15 percent slopes. This strongly sloping soil is on the sides of hills or on knolls at the base of hills adjacent to the major streams. Areas are long and narrow or irregularly shaped and are 4 to 75 acres in size.

A generalized profile of this soil is as follows:



In some areas the soil has more gravel.

Inclusions make up about 15 percent of the map unit. Among these are Hinckley soils in scattered areas throughout the map unit; soils that have slopes of less than 8 percent or more than 15 percent; and, in the seacoast region, soils that have a loamy substratum, mottles, or both below a depth of 50 inches.

Soil features affecting use—

Drainage class: excessively drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: rapid
Available water capacity: very low
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. The soil is a source of sand.

This soil is poorly suited to cultivated crops and forage species. It is droughty during the summer. Adding organic material, such as manure or crop residue, can increase the available water capacity. Plants that are adapted to dry soil conditions should be selected for planting. Certain crops, such as vegetables, may require irrigation during dry summers to maintain yields. Because of the summer droughtiness, the soil is most productive as pasture in early spring. Erosion and the slope are management concerns. In areas used for corn silage, erosion can be controlled by a system of conservation tillage, such as no-till farming, or by contour stripcropping in combination with short rotations. In areas where row crops, such as vegetables, are grown year after year, the slope length generally should be reduced by some structure, such as a terrace or a diversion, if erosion is to be controlled. Because of the slope, care is needed in operating some types of farm machinery.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Management that favors the regeneration of white pine includes cuttings in which only a portion of the trees are harvested. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as pruning. Because the soil is droughty, the trees can be harvested any time of the year, even in spring. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development. Because of the sandy texture, however, it is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too fast to be adequately purified before reaching the water table. Because of the slope, cutting and filling are needed to level sites for septic tank absorption fields. Care must be taken in excavating the soil because steep cutbanks frequently cave in. Adding retaining walls or grading the slopes can keep the banks from collapsing. Lawns may require irrigation during dry summers, when the soil is droughty. Incorporating organic material, such as plant residue or manure, into the soil can increase the available water capacity. Mulching and frequent watering may be required in disturbed areas. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover.

26E—Windsor loamy sand, 15 to 60 percent slopes. This moderately steep to very steep soil is on the sides of hills or on escarpments adjacent to streams. Areas are long and narrow and are 4 to 75 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown loamy sand

Subsoil:
yellowish brown sand

Substratum:
light yellowish brown sand

In some areas the soil has more gravel.

Inclusions make up about 10 percent of the map unit. Among these are Hinckley soils in scattered areas throughout the map unit and soils that have slopes of less than 15 percent.

Soil features affecting use—

Drainage class: excessively drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: rapid
Available water capacity: very low
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. The soil is a source of sand.

This soil is generally unsuited to cultivated crops and forage species because of droughtiness, erosion, and the slope. Plants that provide a permanent protective cover and are adapted to dry soil conditions should be maintained on this soil. Because of the slope, operating most types of farm machinery is impractical and hazardous.

This soil is suited to woodland. The most common trees are eastern white pine, red pine, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Management that favors the regeneration of white pine includes cuttings in which only a portion of the trees are harvested. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as pruning. Because the soil is droughty, the trees can be harvested any time of the year, even in spring. On the steeper slopes, where a skidder may overturn, winching may be the only way to remove logs that have been felled. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as benching of logging roads into the hillside, water bars, stone fords, culverts, roadside ditches, and a permanent plant cover.

This soil is very poorly suited to urban development because of the slope.

29A—Woodbridge fine sandy loam, 0 to 3 percent slopes. This nearly level soil is on the tops of smooth, rounded hills that in most places have a northwest orientation. Areas are oval or irregularly shaped and are 4 to 50 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown fine sandy loam

Subsoil (upper part):
yellowish brown fine sandy loam

Subsoil (lower part):
mottled yellowish brown fine sandy loam

Substratum:
firm mottled light yellowish brown fine sandy loam

Inclusions make up about 15 percent of the map unit. Among these are Ridgebury soils in drainageways, Paxton soils on low rises near the margins of the map unit, and Scituate soils in scattered areas throughout the map unit.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: 1.5 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used for cultivated crops or forage. Some areas are used for urban development, and some are used as woodland. In most areas the soil is considered prime farmland.

This soil is well suited to cultivated crops and forage species, but it is wet during the early part of the growing season. The wetness hampers early planting of the crops that require a long growing season. If the wetness in areas of cropland is reduced by land grading and by a subsurface drainage system, spring planting can begin on schedule. Grazing of undrained pasture should be delayed until the soil dries out. Frost action is a limitation. Perennial plants that can withstand wetness and frost action should be selected for planting. For example, alfalfa does not grow well on this soil because frost heaving damages the roots. A better choice of perennial forage would be a grass-legume mixture that includes clover.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, and northern red oak. Areas of this soil are good sites for the production of sawlogs and fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by some form of partial cutting, in which only a portion of the trees are removed. Shelterwood cutting, in which half of the trees are removed, is not recommended because strong winds may uproot the remaining trees. A better alternative is improvement cutting, in which only a third of the trees are harvested and thus the hazard of windthrow is reduced. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

This soil is suited to urban development, but the wetness and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings.

29B—Woodbridge fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is on the tops and sides of smooth, rounded hills that in most places have a northwest orientation. Areas are oval or irregularly shaped and are 4 to 50 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown fine sandy loam

Subsoil (upper part):
yellowish brown fine sandy loam

Subsoil (lower part):
mottled yellowish brown fine sandy loam

Substratum:
firm mottled light yellowish brown fine sandy loam

Inclusions make up about 20 percent of the map unit. Among these are Ridgebury soils in hollows and drainageways, Paxton soils on knolls and near the margins of the map unit, and Scituate soils in scattered areas throughout the map unit.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: 1.5 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used for cultivated crops or forage. Some areas are used for urban development, and some are used as woodland. In most areas the soil is considered prime farmland.

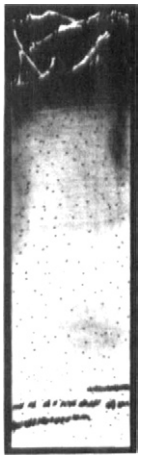
This soil is well suited to cultivated crops and forage species, but it is wet during the early part of the growing season. The wetness hampers early planting of the crops that require a long growing season. If the wetness in areas of cropland is reduced by land shaping and grading and by a subsurface drainage system, spring planting can begin on schedule. Grazing of undrained pasture should be delayed until the soil dries out. Frost action is a limitation. Perennial plants that can withstand wetness and frost action should be selected for planting. For example, alfalfa does not grow well on this soil because frost heaving damages the roots. A better choice of perennial forage would be a grass-legume mixture that includes clover. Because of the slope, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by some form of partial cutting, in which only a portion of the trees are removed. Shelterwood cutting, in which half of the trees are removed, is not recommended because strong winds may uproot the remaining trees. A better alternative is improvement cutting, in which only a third of the trees are harvested and thus the hazard of windthrow is reduced. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

This soil is suited to urban development, but the wetness and the restricted permeability are limitations. Fill is generally needed to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover.

30A—Unadilla very fine sandy loam, 0 to 3 percent slopes. This nearly level soil is on knolls and wide plains. Areas are irregularly shaped and are 4 to 60 acres in size.

A generalized profile of this soil is as follows:



Surface Layer:
dark brown very fine sandy loam

Subsoil:
light olive brown very fine sandy loam

Substratum:
light olive brown very fine sand

In places the lower part of the subsoil and the substratum are loamy fine sand or fine sand.

Inclusions make up about 15 percent of the map unit. Among these are Scio soils in hollows; Raynham soils in drainageways; and, in the seacoast region, Eldridge soils in scattered areas and Squamscott soils in drainageways.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderate or moderately rapid
Available water capacity: high
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for cultivated crops or forage. In most areas the soil is considered prime farmland.

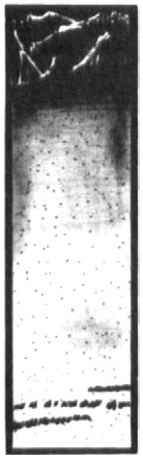
This soil is very well suited to cultivated crops and forage species. Because of the texture of the surface layer, however, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures. Frost action is a limitation. Perennial plants that resist frost action should be selected for planting. For example, alfalfa does not grow well on this soil because frost heaving damages the roots. A better choice of perennial forage would be a grass-legume mixture that includes clover.

This soil is well suited to woodland. The most common trees are eastern white pine, sugar maple, black cherry, white ash, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by shelterwood cutting, in which only a portion of the trees are removed. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry.

This soil is well suited to urban development. Care is needed in excavating the soil because cutbanks can cave in. Adding retaining walls or grading long side slopes can stabilize the banks. Frost action is a limitation. Designing roads so that they have a proper subgrade helps to prevent frost heaving. Foundations should have adequate footings, so that they are not damaged by frost action. Because of the texture of the surface layer, erosion is a hazard even on gentle slopes. Common erosion- and sediment-control measures are sediment traps and a good plant cover.

30B—Unadilla very fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is on knolls. Areas are irregularly shaped and are 4 to 30 acres in size.

A generalized profile of this soil is as follows:



Surface Layer:
dark brown very fine sandy loam

Subsoil:
light olive brown very fine sandy loam

Substratum:
light olive brown very fine sand

In places the lower part of the subsoil and the substratum are loamy fine sand or fine sand.

Inclusions make up about 15 percent of the map unit. Among these are Scio soils in hollows and Eldridge soils in scattered areas throughout the seacoast region. Also included are soils that have slopes of less than 3 percent or more than 8 percent.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderate or moderately rapid
Available water capacity: high
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for cultivated crops or forage. In most areas the soil is considered additional farmland of statewide importance.

This soil is well suited to cultivated crops and forage species. Because of the slope and the texture of the surface layer, however, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures. Frost action is a limitation. Perennial plants that resist frost action should be selected for planting. For example, alfalfa does not grow well on this soil because frost heaving damages the roots. A better choice of perennial forage would be a grass-legume mixture that includes clover.

This soil is well suited to woodland. The most common trees are eastern white pine, sugar maple, black cherry, white ash, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by shelterwood cutting, in which only a portion of the trees are removed. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry.

This soil is well suited to urban development. Care is needed in excavating the soil because cutbanks can cave in. Adding retaining walls or grading long side slopes can stabilize the banks. Frost action is a limitation. Designing roads so that they have the proper subgrade helps to prevent frost heaving. Foundations should have adequate footings, so that they are not damaged by frost action. Because of the slope and the texture of the surface layer, erosion is a hazard during construction. Common erosion- and sediment-control measures are hay-bale sediment traps, debris basins, sediment screens, and a good plant cover. Ditches, culverts, riprap, and catch basins are needed to control the runoff of storm water.

32A—Boxford silt loam, 0 to 3 percent slopes. This nearly level soil is on low, gentle rises on broad plains or on low rises at the base of hills or adjacent to streams. Areas are oval or irregularly shaped and are 4 to 125 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown silt loam

Subsoil (upper part):
dark yellowish brown silt loam

Subsoil (lower part):
mottled olive silt loam

Substratum:
mottled olive silty clay

Inclusions make up about 20 percent of the map unit. Among these are Scitico and Squamscott soils in hollows and drainageways and Eldridge soils on scattered low rises throughout the map unit.

Soil features affecting use—

Drainage class: moderately well drained and somewhat poorly drained
Depth to a seasonal high water table: 1 to 3 feet
Depth to bedrock: more than 60 inches
Permeability: slow
Available water capacity: high
Flooding: none
Potential for frost action: high
Shrink-swell potential: moderate

Most areas of this soil are used as woodland. Some areas are used for cultivated crops or forage. In most areas the soil is considered prime farmland.

This soil is well suited to cultivated crops and forage species, but it is wet and thaws slowly during the early part of the growing season. The wetness and low soil temperature hamper early planting of the crops that require a long growing season. Because of the restricted permeability, the soil is wet after a heavy rain. Although a subsurface drainage system may not be effective, land grading can reduce the wetness. Early planting should be avoided. Working the soil during wet periods results in the formation of ruts, compaction, and clodding. Grazing of undrained pasture should be delayed until the soil dries out. Frost action is a limitation. Perennial plants that can withstand wetness and frost action should be selected for planting. For example, alfalfa does not grow well on this soil because frost heaving damages the roots. A better choice of perennial forage would be a grass-legume mixture that includes clover.

This soil is well suited to woodland. The most common trees are paper birch, eastern white pine, eastern hemlock, and northern red oak. Areas of this soil can be good sites for white pine and produce high-quality pine sawlogs, but preventing the invasion of hardwoods or hemlock is difficult. For example, after an area has been clearcut, red maple, aspen, or hemlock will reseed rather than white pine. Partial cutting can favor white pine. Shelterwood cutting, in which half of the trees are removed, is not recommended because strong winds may uproot the remaining trees. A better alternative is improvement cutting, in which only a third of the trees are harvested and thus the hazard of windthrow is reduced. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down. Midsummer harvesting can result in little rut formation if the summer has been dry. Because of the restricted permeability, however, a single heavy rainstorm can wet the site enough for machine traffic to cause the formation of deep ruts.

This soil is suited to urban development, but the wetness, the restricted permeability, and frost action are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Storm water management is critical because of the restricted permeability. Land shaping, ditching, and installing culverts around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Because of the potential for frost action, foundations should have adequate footings. Properly designing road subgrades can reduce the hazard of frost heaving.

32B—Boxford silt loam, 3 to 8 percent slopes. This gently sloping soil is on low knolls in broad, low areas and on the lower side slopes adjacent to hills. Areas are long and narrow or irregularly shaped and are 4 to 140 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown silt loam

Subsoil (upper part):
dark yellowish brown silt loam

Subsoil (lower part):
mottled olive silt loam

Substratum:
mottled olive silty clay

Inclusions make up about 20 percent of the map unit. Among these are Scitico soils in hollows, Eldridge soils in scattered areas throughout the map unit, and soils that have slopes of more than 8 percent or less than 3 percent.

Soil features affecting use—

Drainage class: moderately well drained and somewhat poorly drained
Depth to a seasonal high water table: 1 to 3 feet
Depth to bedrock: more than 60 inches
Permeability: slow
Available water capacity: high
Flooding: none
Potential for frost action: high
Shrink-swell potential: moderate

Most areas of this soil are used as woodland. In most areas the soil is considered additional farmland of statewide importance.

This soil is well suited to cultivated crops and forage species. Because of the slope, however, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures. The soil is wet and thaws slowly during the early part of the growing season. The wetness and low soil temperature hamper early planting of the crops that require a long growing season. Because of the restricted permeability, the soil is wet after a heavy rain. Although a subsurface drainage system may not be effective, land grading can reduce the wetness. Early planting should be avoided. Working the soil during wet periods results in the formation of ruts, compaction, and clodding. Grazing of undrained pasture should be delayed until the soil dries out. Frost action is a limitation. Perennial plants that can withstand wetness and frost action should be selected for planting. For example, alfalfa does not grow well on this soil because frost heaving damages the roots. A better choice of perennial forage would be a grass-legume mixture that includes clover.

This soil is well suited to woodland. The most common trees are paper birch, eastern white pine, eastern hemlock, and northern red oak. Areas of this soil can be good sites for white pine and produce high-quality pine sawlogs, but preventing the invasion of hardwoods or hemlock is difficult. For example, after an area has been clearcut, red maple, aspen, or hemlock will reseed rather than white pine. Partial cutting can favor white pine. Shelterwood cutting, in which half of the trees are removed, is not recommended because strong winds may uproot the remaining trees. A better alternative is improvement cutting, in which only a third of the trees are harvested and thus the hazard of windthrow is reduced. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down. Midsummer harvesting can result in little rut formation if the summer has been dry. Because of the restricted permeability, however, a single heavy rainstorm can wet the site enough for machine traffic to cause the formation of deep ruts.

This soil is suited to urban development, but the wetness, the restricted permeability, and frost action are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Storm water management is critical because of the restricted permeability. Land shaping, ditching, and installing culverts around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Because of the potential for frost action, foundations should have adequate footings. Properly designing road subgrades

can reduce the hazard of frost heaving. Because of the slope, erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover.

Erosion is a factor in the management of storm water. Riprap, catch basins, a good plant cover, and diversions can control the runoff of storm water.

32C—Boxford silt loam, 8 to 15 percent slopes. This strongly sloping soil is on the sides of low hills. Areas are long and narrow or irregularly shaped and are 5 to 40 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown silt loam

Subsoil (upper part):
dark yellowish brown silt loam

Subsoil (lower part):
mottled olive silt loam

Substratum:
mottled olive silty clay

Inclusions make up about 20 percent of the map unit. Among these are Scitico soils in drainageways and soils that have slopes of more than 15 percent or less than 8 percent.

Soil features affecting use—

Drainage class: moderately well drained and somewhat poorly drained
Depth to a seasonal high water table: 1 to 3 feet
Depth to bedrock: more than 60 inches
Permeability: slow
Available water capacity: high
Flooding: none
Potential for frost action: high
Shrink-swell potential: moderate

Most areas of this soil are used as woodland.

This soil is suited to cultivated crops and forage species, but erosion and the slope are management concerns. In areas used for corn silage, erosion can be controlled by a system of conservation tillage, such as no-till farming, or by contour stripcropping in combination with short rotations. In areas where row crops, such as vegetables, are grown year after year, the slope length generally should be reduced by some structure, such as a terrace or a diversion, if erosion is to be controlled. Because of the slope, care is needed in operating some types of farm machinery. The soil is wet and thaws slowly during the early part of the growing season. The wetness and low soil temperature hamper early planting of the crops that require a long growing season. Because of the restricted permeability, the soil is wet after a heavy rain. Although a subsurface drainage system may not be effective, land grading can reduce the wetness. Early planting should be avoided, and grazing of undrained pasture should be delayed until the soil dries out. Working the soil during wet periods results in the formation of ruts, compaction, and clodding. Frost action is a limitation. Perennial plants that can withstand wetness and frost action should be selected for planting. For example, alfalfa does not grow well on this soil because frost heaving damages the roots. A better choice of perennial forage would be a grass-legume mixture that includes clover.

This soil is suited to woodland. The most common trees are paper birch, eastern white pine, eastern hemlock, and northern red oak. Areas of this soil can be good sites for white pine and produce high-quality pine sawlogs, but preventing the invasion of hardwoods or hemlock is difficult. For example, after an area has been clearcut, red maple, aspen, or hemlock will reseed rather than white pine. Partial cutting can favor white pine. Shelterwood cutting, in which half of the trees are removed, is not recommended because strong winds may uproot the remaining trees. A better alternative is improvement cutting, in which only a third of the trees are harvested and thus the hazard of windthrow is reduced. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down. Midsummer harvesting can result in little rut formation if the summer has been dry. Because of the restricted permeability, however, a single heavy rainstorm can wet the site enough for machine traffic to cause the formation of deep ruts. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development, but the wetness, the slope, frost action, and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Because of the slope, cutting and filling are common on construction sites and fill is needed on sites for septic tank absorption fields. Erosion occurs during earth-moving operations.

Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. The design of subdivisions should include adequate management of storm water through properly designed ditches, riprap, culverts, and catch basins, which help to control erosion once the development is completed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Because of the potential for frost action, foundations should have adequate footings. Properly designing road subgrades can reduce the hazard of frost heaving.

33A—Scitico silt loam, 0 to 5 percent slopes. This nearly level and gently sloping soil is on broad, low plains and in drainageways. Areas are long and narrow or irregularly shaped and are 4 to 400 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
very dark grayish brown silt loam

Subsoil:
mottled olive gray silty clay loam

Substratum:
mottled dark gray silty clay

In some areas the part of the substratum below a depth of 36 inches is more olive.

Inclusions make up about 15 percent of the map unit. Among these are Maybid soils in hollows and drainageways, Squamscott soils on low rises near the margins of the map unit, and Boxford soils on knolls.

Soil features affecting use—

Drainage class: poorly drained
Depth to a seasonal high water table: 0 to 1 foot
Depth to bedrock: more than 60 inches
Permeability: slow
Available water capacity: high
Flooding: none
Potential for frost action: high
Shrink-swell potential: moderate

Most areas of this soil are used as woodland. In some areas the soil is classified as wetland.

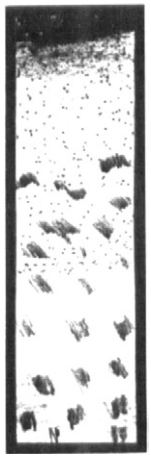
This soil is poorly suited to cultivated crops and forage species. It is wet and thaws slowly in spring. The wetness and low soil temperature hamper early planting of the crops that require a long growing season. Because of the restricted permeability, the soil is wet after a heavy rain. Although a subsurface drainage system may not be effective, bedding systems and land grading can reduce the wetness. Early planting should be avoided, and grazing of undrained pasture should be delayed until the soil dries out. Working the soil during wet periods results in the formation of ruts, compaction, and clodding. Frost action is a limitation. Perennial plants that can withstand wetness and frost action should be selected for planting. For example, alfalfa does not grow well on this soil because frost heaving damages the roots. A better choice of perennial forage would be a grass-legume mixture that includes clover.

This soil is suited to woodland. The most common trees are red maple, eastern white pine, and white ash. The trees are of low quality, though the stands may be densely stocked and yields may be high. The site conditions favor the production of fuelwood. Various species of wildlife are attracted to areas of this soil. In areas managed for fuelwood, scattered ribbon-shaped or kidney-shaped clearcuts should be throughout the lot. The clearcuts should be no more than 200 feet across. The small clearcuts can reduce the hazard of windthrow and provide a varied habitat for wildlife. Harvesting methods that leave a diversity of trees, such as snag trees, trees with cavities, and a variety of size classes, improve the habitat for wildlife. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down. Midsummer harvesting can result in little rutting if the summer has been dry. Because of the restricted permeability, however, a single heavy rainstorm can wet the site enough for machine traffic to cause the formation of deep ruts.

This soil is poorly suited to urban development because of the wetness, ponding, frost action, and the restricted permeability. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, but outlets for the drains are not readily available in some areas. Sump pumps may still be needed. Storm water management is critical because of the restricted permeability. Land shaping, ditching, and installing culverts around the development can help to remove surface water, but ponding may still occur after heavy rains. Because of the potential for frost action, foundations should have adequate footings. Properly designing road subgrades can reduce the hazard of frost heaving.

38A—Eldridge fine sandy loam, 0 to 3 percent slopes. This nearly level soil is on low rises in broad drainageways and on broad plains. Areas are oval or irregularly shaped and are 4 to 100 acres in size.

A generalized profile of this soil is as follows:



Surface Layer:
dark yellowish brown fine sandy loam

Subsoil (upper part):
yellowish brown loamy fine sand

Subsoil (lower part):
mottled yellowish brown loamy fine sand

Substratum:
mottled grayish brown silt loam

In some places depth to the loamy substratum is more than 40 inches. In other places the substratum has more than 18 percent clay.

Inclusions make up about 20 percent of the map unit. Among these are Squamscott and Scitico soils in drainageways, in hollows, and near the margins of the map unit and well drained soils on the tops of knolls.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: 1 to 2 feet
Depth to bedrock: more than 60 inches
Permeability: rapid in the upper part of the profile and moderately slow in the lower part
Available water capacity: high
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for cultivated crops or forage. In most areas the soil is considered prime farmland.

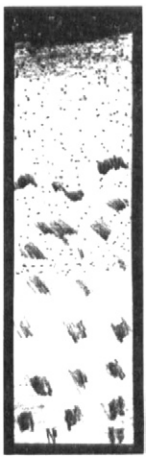
This soil is well suited to cultivated crops and forage species, but it is wet during the early part of the growing season. The wetness hampers early planting of the crops that require a long growing season. Working the soil during wet periods results in the formation of ruts and in compaction. If the wetness in areas of cropland is reduced by a subsurface drainage system, the crops can be planted on schedule. Land grading also can reduce the wetness. Grazing of undrained pasture should be delayed until the soil dries out. Farm machinery should not be used when the soil is wet.

This soil is well suited to woodland. The most common trees are eastern white pine and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, red maple, elm, and other hardwoods will reseed rather than white pine. An alternative that would favor the regeneration of white pine is improvement cutting, in which approximately a third of the trees are harvested. Shelterwood cutting, in which half of the trees are removed, is not recommended because of the hazard of windthrow. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as thinning and pruning. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

This soil is suited to urban development, but the wetness and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings.

38B—Eldridge fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is at the base of hills, on low rises in broad drainageways, and on broad plains. Areas are oval or irregularly shaped and are 4 to 200 acres in size.

A generalized profile of this soil is as follows:



Surface Layer:
dark yellowish brown fine sandy loam

Subsoil (upper part):
yellowish brown loamy fine sand

Subsoil (lower part):
mottled yellowish brown loamy fine sand

Substratum:
mottled grayish brown silt loam

In some places depth to the loamy substratum is more than 40 inches. In other places the substratum has more than 18 percent clay.

Inclusions make up about 20 percent of the map unit. Among these are Squamscott and Scitico soils in drainageways, in hollows, and near the margins of the map unit; Boxford soils in scattered areas throughout the map unit; and well drained soils on the tops of knolls.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: 1 to 2 feet
Depth to bedrock: more than 60 inches
Permeability: rapid in the upper part of the profile and moderately slow in the lower part
Available water capacity: high
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for cultivated crops or forage. In most areas the soil is considered prime farmland.

This soil is well suited to cultivated crops and forage species, but it is wet during the early part of the growing season. The wetness hampers early planting of the crops that require a long growing season. Working the soil during wet periods results in the formation of ruts and in compaction. If the wetness in areas of cropland is reduced by a subsurface drainage system, the crops can be planted on schedule. Land shaping and grading also can reduce the wetness. Grazing of undrained pasture should be delayed until the soil dries out. Farm machinery should not be used when the soil is wet. Because of the slope, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming, chisel plowing, and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures.

This soil is well suited to woodland. The most common trees are eastern white pine and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, red maple, elm, and other hardwoods will reseed rather than white pine. An alternative that would favor the regeneration of white pine is improvement cutting, in which approximately a third of the trees are harvested. Shelterwood cutting, in which half of the trees are removed, is not recommended because of the hazard of windthrow. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as thinning and pruning. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

This soil is suited to urban development, but the wetness and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover.

42B—Canton gravelly fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is on the tops of hills and on low rises on broad plains. Areas are oval or irregularly shaped and are 4 to 75 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown gravelly fine sandy loam

Subsoil:
yellowish brown gravelly fine sandy loam

Substratum:
light gray loamy sand

In places the substratum has less silt and more sand and gravel.

Inclusions make up about 25 percent of the map unit. Among these are Newfields soils in hollows and drainageways and Charlton and Montauk soils in scattered areas throughout the map unit. Also included are soils that have slopes of less than 3 percent.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for urban development, and some are used for cultivated crops or forage. In most areas the soil is considered additional farmland of statewide importance.

This soil is well suited to cultivated crops and forage species. Because of the slope, however, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures.

This soil is well suited to woodland. The most common trees are eastern white pine and northern red oak. Areas of this soil are good sites for the production of sawlogs or fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry.

This soil is well suited to urban development. Care is needed in excavating the soil because steep cutbanks may cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover.

42C—Canton gravelly fine sandy loam, 8 to 15 percent slopes. This strongly sloping soil is on the tops, shoulders, and back slopes of hills. Areas are oval or irregularly shaped and are 4 to 125 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown gravelly fine sandy loam

Subsoil:
yellowish brown gravelly fine sandy loam

Substratum:
light gray loamy sand

In places the substratum has less silt and more sand and gravel.

Inclusions make up about 20 percent of the map unit. Among these are Newfields soils in hollows and drainageways and Chatfield and Montauk soils in scattered areas throughout the map unit. Also included are soils that have slopes of less than 8 percent or more than 15 percent.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for urban development, and some are used for cultivated crops or forage. In most areas the soil is considered additional farmland of statewide importance.

This soil is suited to cultivated crops and forage species, but erosion and the slope are management concerns. In areas used for corn silage, erosion can be controlled by a system of conservation tillage, such as no-till farming, or by contour stripcropping in combination with short rotations. In areas where row crops, such as vegetables, are grown year after year, the slope length generally should be reduced by some structure, such as a terrace or a diversion, if erosion is to be controlled. Because of the slope, care is needed in operating some types of farm machinery.

This soil is well suited to woodland. The most common trees are eastern white pine and northern red oak. Areas of this soil are good sites for the production of sawlogs or fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development. Because of the slope, cutting and filling are needed to level sites for septic tank absorption fields. Care is needed in excavating the soil because steep cutbanks may cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. If erosion is to be controlled once the development is completed, the design of subdivisions should include adequate management of storm water through properly designed ditches, culverts, riprap, a good plant cover, and catch basins.

42D—Canton gravelly fine sandy loam, 15 to 25 percent slopes. This moderately steep soil is on the shoulders and back slopes of hills. Areas are long and narrow or irregularly shaped and are 4 to 80 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown gravelly fine sandy loam

Subsoil:
yellowish brown gravelly fine sandy loam

Substratum:
light gray loamy sand

In places the substratum has less silt and more sand and gravel.

Inclusions make up about 15 percent of the map unit. Among these are Paxton and Montauk soils in the higher areas near the tops of hills and Newfields soils in the lower areas near the base of hills. Also included, especially in the southeastern part of the county, are some areas of Hinckley soils at the lower margins of the map unit.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for cultivated crops or forage.

This soil is poorly suited to cultivated crops and forage species. Because of the slope, erosion is a hazard. In areas used for corn silage, no-till farming is the only method of conservation tillage that adequately protects the soil. In areas where row crops, such as vegetables, are grown year after year, controlling erosion is not practical. A permanent plant cover, such as that in areas of pasture or hayland, is the most effective way of controlling erosion. Because of the slope, operating most types of farm machinery is difficult or impractical and can be hazardous.

This soil is well suited to woodland. The most common trees are eastern white pine and northern red oak. Areas of this soil are good sites for the production of sawlogs or fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as benching of logging roads into the hillside, water bars, stone fords, culverts, roadside ditches, and a permanent plant cover.

This soil is poorly suited to urban development. Because of the slope, extensive cutting and filling commonly are needed. Care is needed during cutting and filling to keep machinery from turning over. Fill can be used to level sites for septic tank absorption fields, but some areas are too steep for leveling. Erosion can occur during earth-moving operations. Because of the slope, controlling erosion can be difficult. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. Constructing streets on the contour can reduce road grades and the runoff rate. Because of the slope, storm water management should include erosion-control measures, such as catch basins, ditches, culverts, riprap, and a good plant cover. Care is needed in excavating the soil because steep cutbanks can cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing.

43B—Canton gravelly fine sandy loam, 3 to 8 percent slopes, very stony. This gently sloping soil is on the tops of hills and on low rises on broad plains. Areas are irregularly shaped and are 4 to 150 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown gravelly fine sandy loam

Subsoil:
yellowish brown gravelly fine sandy loam

Substratum:
light gray loamy sand

In places the substratum has less silt and more sand and gravel.

Inclusions make up about 20 percent of the map unit. Among these are Newfields soils in hollows and drainageways, Chatfield soils on northeasterly trending ridges, and Montauk soils near the tops of hills. Also included are soils that have slopes of less than 3 percent.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland.

This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin.

This soil is well suited to woodland. The most common trees are eastern white pine and northern red oak. Areas of this soil are good sites for the production of sawlogs or fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry.

This soil is well suited to urban development. Care is needed in excavating the soil because steep cutbanks may cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

43C—Canton gravelly fine sandy loam, 8 to 15 percent slopes, very stony. This strongly sloping soil is on the tops, shoulders, and back slopes of hills. Areas are irregularly shaped and are 4 to 140 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown gravelly fine sandy loam

Subsoil:
yellowish brown gravelly fine sandy loam

Substratum:
light gray loamy sand

In places the substratum has less silt and more sand and gravel.

Inclusions make up about 20 percent of the map unit. Among these are Newfields soils in hollows and along drainageways, Chatfield soils on northeasterly trending ridges, and Montauk soils on the summits of hills. Also included are soils that have slopes of less than 8 percent or more than 15 percent.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland.

This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. Because of the slope, care is needed in operating some types of farm machinery.

This soil is well suited to woodland. The most common trees are eastern white pine and northern red oak. Areas of this soil are good sites for the production of sawlogs or fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development. Because of the slope, cutting and filling are needed to level sites for septic tank absorption fields. Care is needed in excavating the soil because steep cutbanks may cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. If erosion is to be controlled once the development is completed, the design of subdivisions should include adequate management of storm water through properly designed ditches, culverts, riprap, a good plant cover, and catch basins. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

43D—Canton gravelly fine sandy loam, 15 to 25 percent slopes, very stony. This moderately steep soil is on the shoulders and back slopes of hills. Areas are long and narrow or irregularly shaped and are 4 to 75 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown gravelly fine sandy loam

Subsoil:
yellowish brown gravelly fine sandy loam

Substratum:
light gray loamy sand

In places the substratum has less silt and more sand and gravel.

Inclusions make up about 15 percent of the map unit. Among these are Paxton and Montauk soils near the tops of hills, Chatfield soils in scattered areas throughout the map unit, and Newfields soils near the base of hills. Also included are soils that have slopes of more than 25 percent.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland.

This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. Because of the slope, operating most types of farm machinery is difficult or impractical and can be hazardous.

This soil is well suited to woodland. The most common trees are eastern white pine and northern red oak. Areas of this soil are good sites for the production of sawlogs or fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as benching of logging roads into the hillside, water bars, stone fords, culverts, roadside ditches, and a permanent plant cover.

This soil is poorly suited to urban development. Because of the slope, extensive cutting and filling commonly are needed. Care is needed during cutting and filling to keep machinery from turning over. Fill can be used to level sites for septic tank absorption fields, but some areas are too steep for leveling. Erosion can occur during earth-moving operations. Because of the slope, controlling erosion can be difficult. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. Constructing streets on the contour can reduce road grades and the runoff rate. Because of the slope, storm water management should include erosion-control measures, such as catch basins, ditches, culverts, riprap, and a good plant cover. Care is needed in excavating the soil because steep cutbanks can cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

43E—Canton gravelly fine sandy loam, 25 to 35 percent slopes, very stony. This steep soil is on the shoulders and back slopes of hills. Areas are long and narrow or irregularly shaped and are 4 to 50 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown gravelly fine sandy loam

Subsoil:
yellowish brown gravelly fine sandy loam

Substratum:
light gray loamy sand

In places the substratum has less silt and more sand and gravel.

Inclusions make up about 15 percent of the map unit. Among these are Chatfield soils on northeasterly trending ridges and Hinckley soils at the lower margins of the map unit. Also included are soils that have slopes of less than 25 percent or more than 35 percent.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland.

This soil is generally unsuited to cultivated crops and forage species because of surface stones, erosion, and the slope. Erosion can be controlled only by a permanent plant cover, such as that in areas of pasture. Because of the slope, operating most types of farm machinery is impractical and hazardous.

This soil is well suited to woodland. The most common trees are eastern white pine and northern red oak. Areas of this soil are good sites for the production of sawlogs or fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. The soil is wet for a short period in early spring. Harvesting during this period causes the formation of ruts. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground is frozen, or in summer and fall, when the soil is drier. On the steeper slopes, where a skidder may overturn, winching may be the only way to remove logs that have been felled. Because of the slope, the main access roads are subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as benching of logging roads into the hillside, water bars, stone fords, culverts, roadside ditches, and a permanent plant cover.

This soil is very poorly suited to urban development because of the slope.

44B—Montauk fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is on the tops of hills that in most places have a northwest orientation. Areas are oval or irregularly shaped and are 5 to 50 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark grayish brown fine sandy loam

Subsoil:
yellowish brown cobbly fine sandy loam

Substratum:
firm light olive gray fine sandy loam

Inclusions make up about 20 percent of the map unit. Among these are Canton soils in scattered areas throughout the map unit and Scituate soils in hollows.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: 2.0 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate or moderately slow
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used for cultivated crops or forage. Some areas are used as woodland, and some are used for urban development. In most areas the soil is classified as prime farmland.

This soil is well suited to cultivated crops and forage species. Because of the slope, however, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. In early spring, the soil is wet and intermittent streams are flowing at full capacity, and in late fall the soil can be wet if the fall rains have been particularly heavy. Harvesting during these periods causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during these periods. A better alternative is logging in midwinter, when the ground and streams are frozen, or in midsummer when the soil is drier and the beds of intermittent streams are dry.

This soil is well suited to urban development, but the wetness in spring and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness in cellars. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy spring rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover.

44C—Montauk fine sandy loam, 8 to 15 percent slopes. This strongly sloping soil is on the tops and sides of hills that in most places have a northwest orientation. Areas are oval or irregularly shaped and are 5 to 100 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark grayish brown fine sandy loam

Subsoil:
yellowish brown cobbly fine sandy loam

Substratum:
firm light olive gray fine sandy loam

Inclusions make up about 20 percent of the map unit. Among these are Canton soils in scattered areas throughout the map unit or at the base of hills, Scituate soils in hollows, and soils that are less than 60 inches deep over bedrock and are on low ridges throughout the map unit. Also included are soils that have slopes of more than 15 percent.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: 2.0 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate or moderately slow
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used for cultivated crops or forage. Some areas are used as woodland, and some are used for urban development. In most areas the soil is classified as additional farmland of statewide importance.

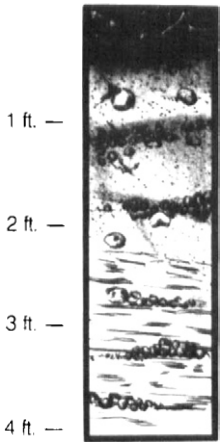
This soil is suited to cultivated crops and forage species, but erosion and the slope are management concerns. In areas used for corn silage, erosion can be controlled by a system of conservation tillage, such as no-till farming, or by contour stripcropping in combination with short rotations. In areas where row crops, such as vegetables, are grown year after year, the slope length generally should be reduced by some structure, such as a terrace or a diversion, if erosion is to be controlled. Because of the slope, care is needed in operating some types of farm machinery.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. In early spring, the soil is wet and intermittent streams are flowing at full capacity, and in late fall the soil can be wet if the fall rains have been particularly heavy. Harvesting during these periods causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during these periods. A better alternative is logging in midwinter, when the ground and streams are frozen, or in midsummer when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development, but the wetness in spring, the restricted permeability, and the slope are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness in cellars. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy spring rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Because of the slope, cutting and filling are needed to level sites for septic tank absorption fields. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. If erosion is to be controlled once the development is completed, the design of subdivisions should include adequate management of storm water through properly designed ditches, culverts, riprap, a good plant cover, and catch basins.

45B—Montauk fine sandy loam, 3 to 8 percent slopes, very stony. This gently sloping soil is on the tops of hills that in most places have a northwest orientation. Areas are oval or irregularly shaped and are 4 to 100 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:



Surface Layer:
dark grayish brown fine sandy loam

Subsoil:
yellowish brown cobbly fine sandy loam

Substratum:
firm light olive gray fine sandy loam

Inclusions make up about 20 percent of the map unit. Among these are Canton soils in scattered areas throughout the map unit and Scituate soils in hollows.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: 2.0 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate or moderately slow
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland.

This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. In early spring, the soil is wet and intermittent streams are flowing at full capacity, and in late fall the soil can be wet if the fall rains have been particularly heavy. Harvesting during these periods causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during these periods. A better alternative is logging in midwinter, when the ground and streams are frozen, or in midsummer when the soil is drier and the beds of intermittent streams are dry.

This soil is suited to urban development, but the wetness in spring and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness in cellars. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy spring rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

45C—Montauk fine sandy loam, 8 to 15 percent slopes, very stony. This strongly sloping soil is on the tops and sides of hills that in most places have a northwest orientation. Areas are oval or irregularly shaped and are 5 to 100 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Surface Layer:
dark grayish brown fine sandy loam

Subsoil:
yellowish brown cobbly fine sandy loam

Substratum:
firm light olive gray fine sandy loam

Inclusions make up about 20 percent of the map unit. Among these are Canton soils in scattered areas throughout the map unit or at the base of hills, Scituate soils in hollows, and soils that are less than 60 inches deep over bedrock and are on low ridges throughout the map unit or at the base of hills. Also included are soils that have slopes of more than 15 percent.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: 2.0 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate or moderately slow
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland.

This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. Because of the slope, care is needed in operating some types of farm machinery.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. In early spring, the soil is wet and intermittent streams are flowing at full capacity, and in late fall the soil can be wet if the fall rains have been particularly heavy. Harvesting during these periods causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during these periods. A better alternative is logging in midwinter, when the ground and streams are frozen, or in midsummer when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development, but the wetness in spring, the restricted permeability, and the slope are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness in cellars. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy spring rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Because of the slope, cutting and filling are needed to level sites for septic tank absorption fields. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. If erosion is to be controlled once the development is completed, the design of subdivisions should include adequate management of storm water through properly designed ditches, culverts, riprap, a good plant cover, and catch basins. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

45D—Montauk fine sandy loam, 15 to 25 percent slopes, very stony. This moderately steep soil is on sides of hills that in most places have a northwest orientation. Areas are oval or irregularly shaped and are 5 to 50 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Surface Layer:
dark grayish brown fine sandy loam

Subsoil:
yellowish brown cobbly fine sandy loam

Substratum:
firm light olive gray fine sandy loam

Inclusions make up about 15 percent of the map unit. Among these are Canton soils in scattered areas throughout the map unit and at the base of hills and soils that are less than 60 inches deep over bedrock and are on ridges and at the base of hills.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: 2.0 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate or moderately slow
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland.

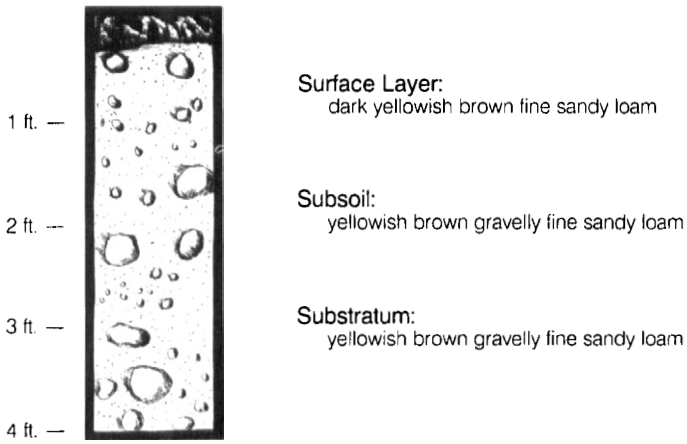
This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. Because of the slope, operating most types of farm machinery is difficult or impractical and can be hazardous.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. In early spring, the soil is wet and intermittent streams are flowing at full capacity, and in late fall the soil can be wet if the fall rains have been particularly heavy. Harvesting during these periods causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during these periods. A better alternative is logging in midwinter, when the ground and streams are frozen, or in midsummer when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as benching of logging roads into the hillside, water bars, stone fords, culverts, roadside ditches, and a permanent plant cover.

This soil is poorly suited to urban development. The wetness in spring, the restricted permeability, and the slope are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness in cellars. Because of the slope, extensive cutting and filling commonly are needed. Care is needed during cutting and filling to keep machinery from turning over. Fill can be used to level sites for septic tank absorption fields, but some areas are too steep for leveling. Erosion can occur during earth-moving operations. Because of the slope, controlling erosion can be difficult. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. Constructing streets on the contour can reduce road grades and the runoff rate. Because of the slope, storm water management should include erosion-control measures, such as catch basins, ditches, culverts, riprap, and a good plant cover. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established if erosion is controlled.

62B—Charlton fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is on the tops of ridges, knolls, and low hills. Areas are oval or irregularly shaped and are 4 to 125 acres in size.

A generalized profile of this soil is as follows:



Inclusions make up about 20 percent of the map unit. Among these are Scituate, Newfields, and Woodbridge soils in hollows and adjacent to drainageways; Walpole soils in drainageways; and Canton and Chatfield soils in scattered areas throughout the higher landscape positions.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderate
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used for cultivated crops or forage. Some areas are used as woodland. In most areas the soil is classified as prime farmland.

This soil is well suited to cultivated crops and forage species. Because of the slope, however, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, shagbark hickory, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry.

This soil is well suited to urban development, but erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover.

62C—Charlton fine sandy loam, 8 to 15 percent slopes. This strongly sloping soil is on the tops and side slopes of ridges, knolls, and hills. Areas are oval or irregularly shaped and are 4 to 100 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark yellowish brown fine sandy loam

Subsoil:
yellowish brown gravelly fine sandy loam

Substratum:
yellowish brown gravelly fine sandy loam

Inclusions make up about 15 percent of the map unit. Among these are Scituate, Newfields, and Woodbridge soils in hollows and adjacent to drainageways; Walpole soils in drainageways; Canton soils in scattered areas throughout the higher landscape positions; and Chatfield soils on ridges.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderate
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used for cultivated crops or forage. Some areas are used as woodland. In most areas the soil is classified as additional farmland of statewide importance.

This soil is suited to cultivated crops and forage species, but erosion and the slope are management concerns. In areas used for corn silage, erosion can be controlled by a system of conservation tillage, such as no-till farming, or by contour stripcropping in combination with short rotations. In areas where row crops, such as vegetables, are grown year after year, the slope length generally should be reduced by some structure, such as a terrace or a diversion, if erosion is to be controlled. Because of the slope, care is needed in operating some types of farm machinery.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, shagbark hickory, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development. Because of the slope, cutting and filling are needed to level sites for septic tank absorption fields. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. If erosion is to be controlled once the development is completed, the design of subdivisions should include adequate management of storm water through properly designed ditches, culverts, riprap, a good plant cover, and catch basins.

63B—Charlton fine sandy loam, 3 to 8 percent slopes, very stony. This gently sloping soil is on the tops of ridges, knolls, and low hills. Areas are oval or irregularly shaped and are 4 to 50 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Surface Layer:
dark yellowish brown fine sandy loam

Subsoil:
yellowish brown gravelly fine sandy loam

Substratum:
yellowish brown gravelly fine sandy loam

Inclusions make up about 15 percent of the map unit. Among these are Scituate, Newfields, and Woodbridge soils in hollows and adjacent to drainageways; Walpole soils in drainageways; and Chatfield soils on ridges and knolls.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderate
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland.

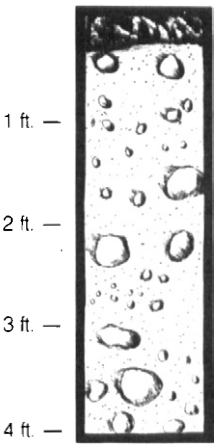
This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, shagbark hickory, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry.

This soil is well suited to urban development, but erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

63C—Charlton fine sandy loam, 8 to 15 percent slopes, very stony. This strongly sloping soil is on the tops and side slopes of ridges, knolls, and low hills. Areas are oval or irregularly shaped and are 4 to 150 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:



Surface Layer:
dark yellowish brown fine sandy loam

Subsoil:
yellowish brown gravelly fine sandy loam

Substratum:
yellowish brown gravelly fine sandy loam

Inclusions make up about 15 percent of the map unit. Among these are Scituate, Newfields, and Woodbridge soils in hollows and adjacent to drainageways; Walpole soils in drainageways; Canton soils in scattered areas throughout the higher landscape positions; and Chatfield soils on ridges. Also included are soils that have slopes of less than 8 percent and areas where less than 0.01 percent of the surface is covered by stones.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderate
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland.

This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. Because of the slope, care is needed in operating some types of farm machinery.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, shagbark hickory, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. For a short period in spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development. Because of the slope, however, cutting and filling are needed to level sites for septic tank absorption fields. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. If erosion is to be controlled once the development is completed, the design of subdivisions should include adequate storm water management through properly designed ditches, culverts, riprap, a good plant cover, and catch basins. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

63D—Charlton fine sandy loam, 15 to 25 percent slopes, very stony. This moderately steep soil is on the shoulders and back slopes of hills. Areas are long and narrow or irregularly shaped and are 4 to 80 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Surface Layer:
dark yellowish brown fine sandy loam

Subsoil:
yellowish brown gravelly fine sandy loam

Substratum:
yellowish brown gravelly fine sandy loam

Inclusions make up about 15 percent of the map unit. Among these are Canton and Chatfield soils in scattered areas throughout the map unit and soils that have slopes of less than 15 percent.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderate
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland.

This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. Because of the slope, operating most types of farm machinery is difficult or impractical and can be hazardous.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, shagbark hickory, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as benching of logging roads into the hillside, water bars, stone fords, culverts, roadside ditches, and a permanent plant cover.

This soil is poorly suited to urban development. Because of the slope, extensive cutting and filling commonly are needed. Care is needed during cutting and filling to keep machinery from turning over. Fill can be used to level sites for septic tank absorption fields, but some areas are too steep for leveling. Erosion can occur during earth-moving operations. Because of the slope, controlling erosion can be difficult. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. Constructing streets on the contour can reduce road grades and the runoff rate. Because of the slope, storm water management should include erosion-control measures, such as catch basins, ditches, culverts, riprap, and a good plant cover. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

66B—Paxton fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is on the tops of smooth, rounded hills that in most places have a northwest orientation. Areas are oval or irregularly shaped and are 4 to 100 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark yellowish brown fine sandy loam

Subsoil:
light yellowish brown fine sandy loam

Substratum:
firm olive fine sandy loam

Inclusions make up about 15 percent of the map unit. Among these are Woodbridge soils in hollows and the more nearly level areas and soils that have slopes of less than 3 percent and are on broad hilltops.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: 1.5 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used for cultivated crops or forage. Some areas are used as woodland, and some are used for urban development. In most areas the soil is classified as prime farmland.

This soil is well suited to cultivated crops and forage species. Because of the slope, however, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. In early spring, the soil is wet and intermittent streams are flowing in full capacity, and in late fall the soil can be wet if the fall rains have been particularly heavy. Harvesting during these periods causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during these periods. A better alternative is logging in midwinter, when the ground and streams are frozen, or in midsummer, when the soil is drier and the beds of intermittent streams are dry.

This soil is well suited to urban development, but the wetness in spring and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness in cellars. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy spring rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover.

66C—Paxton fine sandy loam, 8 to 15 percent slopes. This strongly sloping soil is on the tops and sides of smooth, rounded hills that in most places have a northwest orientation. Areas are oval or irregularly shaped and are 4 to 100 acres in size.

A generalized profile of this soil is as follows:

1 ft. —

2 ft. —

3 ft. —

4 ft. —

Surface Layer:
dark yellowish brown fine sandy loam

Subsoil:
light yellowish brown fine sandy loam

Substratum:
firm olive fine sandy loam

Inclusions make up about 20 percent of the map unit. Among these are Canton and Montauk soils at the base of hills and soils that have slopes of less than 8 percent or more than 15 percent.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: 1.5 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used for cultivated crops or forage. Some areas are used as woodland, and some are used for urban development. In most areas the soil is classified as additional farmland of statewide importance.

This soil is suited to cultivated crops and forage species, but erosion and the slope are management concerns. In areas used for corn silage, erosion can be controlled by a system of conservation tillage, such as no-till farming, or by contour stripcropping in combination with short rotations. In areas where row crops, such as vegetables, are grown year after year, the slope length generally should be reduced by some structure, such as a terrace or a diversion, if erosion is to be controlled. Because of the slope, care is needed in operating some types of farm machinery.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. In early spring, the soil is wet and intermittent streams are flowing at full capacity, and in late fall the soil can be wet if the fall rains have been particularly heavy. Harvesting during these periods causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during these periods. A better alternative is logging in midwinter, when the ground and streams are frozen, or in midsummer, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development, but the wetness in spring, the restricted permeability, and the slope are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness in cellars. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy spring rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Because of the slope, cutting and filling are needed to level sites for septic tank absorption fields. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. If erosion is to be controlled once the development is completed, the design of subdivisions should include adequate management of storm water through properly designed ditches, culverts, riprap, a good plant cover, and catch basins.

66D—Paxton fine sandy loam, 15 to 25 percent slopes. This moderately steep soil is on the sides of smooth, rounded hills that in most places have a northwest orientation. Areas are long and narrow or irregularly shaped and are 4 to 20 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark yellowish brown fine sandy loam

Subsoil:
light yellowish brown fine sandy loam

Substratum:
firm olive fine sandy loam

Inclusions make up about 20 percent of the map unit. Among these are Canton and Montauk soils at the base of hills and soils that have a firm, compact substratum at a depth of more than 40 inches.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: 1.5 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for cultivated crops or forage.

This soil is poorly suited to cultivated crops and forage species. Because of the slope, erosion is a hazard. In areas used for corn silage, no-till farming is the only method of conservation tillage that adequately protects the soil. In areas where row crops, such as vegetables, are grown year after year, controlling erosion is not practical. A permanent plant cover, such as that in areas of pasture or hayland, is the most effective way of controlling erosion. Because of the slope, operating most types of farm machinery is difficult or impractical and can be hazardous.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. In early spring, the soil is wet and intermittent streams are flowing at full capacity, and in late fall the soil can be wet if the fall rains have been particularly heavy. Harvesting during these periods causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during these periods. A better alternative is logging in midwinter, when the ground and streams are frozen, or in midsummer, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as benching of logging roads into the hillside, water bars, stone fords, culverts, roadside ditches, and a permanent plant cover.

This soil is poorly suited to urban development. The wetness in spring, the restricted permeability, and the slope are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness in cellars. Because of the slope, extensive cutting and filling commonly are needed. Care is needed during cutting and filling to keep machinery from turning over. Fill can be used to level sites for septic tank absorption fields, but some areas are too steep for leveling. Erosion can occur during earth-moving operations. Because of the slope, controlling erosion can be difficult. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. Constructing streets on the contour can reduce road grades and the runoff rate. Because of the slope, storm water management should include erosion-control measures, such as catch basins, ditches, culverts, riprap, and a good plant cover. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings.

67B—Paxton fine sandy loam, 3 to 8 percent slopes, very stony. This gently sloping soil is on the tops and sides of smooth, rounded hills that in most places have a northwest orientation. Areas are oval or irregularly shaped and are 4 to 100 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Surface Layer:
dark yellowish brown fine sandy loam

Subsoil:
light yellowish brown fine sandy loam

Substratum:
firm olive fine sandy loam

Inclusions make up about 15 percent of the map unit. Among these are Woodbridge soils in hollows and the more nearly level areas, soils that have slopes of less than 3 percent and are on broad hilltops, and soils that have slopes of more than 8 percent and are on hillsides. Also included, in the seacoast region, are Canton and Hoosic soils at the base of hills and near the margins of the map unit.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: 1.5 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland.

This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. In early spring, the soil is wet and intermittent streams are flowing at full capacity, and in late fall the soil can be wet if the fall rains have been particularly heavy. Harvesting during these periods causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during these periods. A better alternative is logging in midwinter, when the ground and streams are frozen, or in midsummer, when the soil is drier and the beds of intermittent streams are dry.

This soil is suited to urban development, but the wetness in spring and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness in cellars. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy spring rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

67C—Paxton fine sandy loam, 8 to 15 percent slopes, very stony. This strongly sloping soil is on the tops and sides of smooth, rounded hills that in most places have a northwest orientation. Areas are oval or irregularly shaped and are 4 to 150 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Surface Layer:
dark yellowish brown fine sandy loam

Subsoil:
light yellowish brown fine sandy loam

Substratum:
firm olive fine sandy loam

Inclusions make up about 20 percent of the map unit. Among these are Canton and Montauk soils at the base of the hills, Woodbridge soils in hollows, and soils that have slopes of less than 8 percent or more than 15 percent.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: 1.5 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland.

This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. Because of the slope, care is needed in operating some types of farm machinery.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. In early spring, the soil is wet and intermittent streams are flowing at full capacity, and in late fall the soil can be wet if the fall rains have been particularly heavy. Harvesting during these periods causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during these periods. A better alternative is logging in midwinter, when the ground and streams are frozen, or in midsummer, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development, but the wetness in spring, the restricted permeability, and the slope are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness in cellars. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy spring rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Because of the slope, cutting and filling are needed to level sites for septic tank absorption fields. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. If erosion is to be controlled once the development is completed, the design of subdivisions should include adequate management of storm water through properly designed ditches, culverts, riprap, a good plant cover, and catch basins. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

67D—Paxton fine sandy loam, 15 to 25 percent slopes, very stony. This moderately steep soil is on the sides of hills that in most places have a northwest orientation. Areas are long and narrow or irregularly shaped and are 4 to 50 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

1 ft. —

2 ft. —

3 ft. —

4 ft. —

Surface Layer:
dark yellowish brown fine sandy loam

Subsoil:
light yellowish brown fine sandy loam

Substratum:
firm olive fine sandy loam

Inclusions make up about 15 percent of the map unit. Among these are Canton and Montauk soils at the base of hills and soils that have a firm, compact substratum at a depth of more than 40 inches. Also included in some areas are Woodbridge and Ridgebury soils in hollows and narrow drainageways between hills or ridges.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: 1.5 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland.

This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. A permanent plant cover, such as that in areas of pasture or hayland, is the most effective way of controlling erosion. Because of the slope, operating most types of farm machinery is difficult or impractical and can be hazardous.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. In early spring, the soil is wet and intermittent streams are flowing at full capacity, and in late fall the soil can be wet if the fall rains have been particularly heavy. Harvesting during these periods causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during these periods. A better alternative is logging in midwinter, when the ground and streams are frozen, or in midsummer, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as benching of logging roads into the hillside, water bars, stone fords, culverts, roadside ditches, and a permanent plant cover.

This soil is poorly suited to urban development. The wetness in spring, the restricted permeability, and the slope are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness in cellars. Because of the slope, extensive cutting and filling commonly are needed. Care is needed during cutting and filling to keep machinery from turning over. Fill can be used to level sites for septic tank absorption fields, but some areas are too steep for leveling. Erosion can occur during earth-moving operations. Because of the slope, controlling erosion can be difficult. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. Constructing streets on the contour can reduce road grades and the runoff rate. Because of the slope, storm water management should include erosion-control measures, such as catch basins, ditches, culverts, riprap, and a good plant cover. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established if erosion is controlled.

67E—Paxton fine sandy loam, 25 to 35 percent slopes, very stony. This steep soil is on the sides of hills that in most places have a northwest orientation. Areas are long and narrow or irregularly shaped and are 4 to 25 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Inclusions make up about 20 percent of the map unit. Among these are soils that have a firm, compact substratum at a depth of more than 40 inches and soils that have slopes of less than 25 percent.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: 1.5 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland.

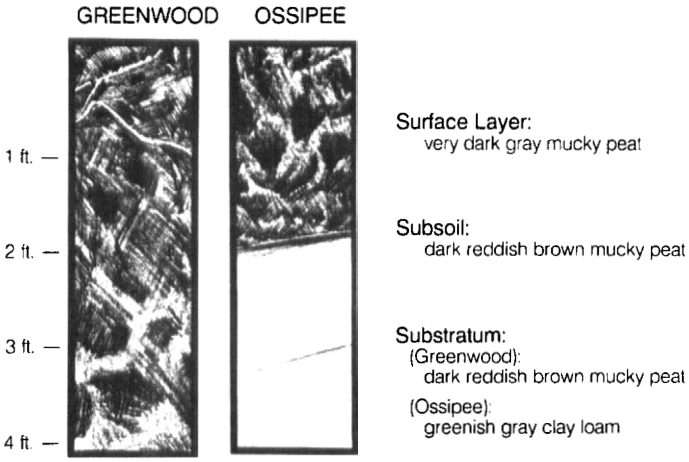
This soil is generally unsuited to cultivated crops and forage species because of surface stones, erosion, and the slope. Special machinery, such as bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. Erosion can be controlled only by a permanent plant cover. Because of the slope, operating most types of farm machinery is impractical and hazardous.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. In early spring, the soil is wet and intermittent streams are flowing at full capacity, and in late fall the soil can be wet if the fall rains have been particularly heavy. Harvesting during these periods causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during these periods. A better alternative is logging in midwinter, when the ground and streams are frozen, or in midsummer, when the soil is drier and the beds of intermittent streams are dry. On the steeper slopes, where a skidder may overturn, winching may be the only way to remove logs that have been felled. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as benching of logging roads into the hillside, water bars, stone fords, culverts, roadside ditches, and a permanent plant cover.

This soil is very poorly suited to urban development because of the slope.

97—Greenwood and Ossipee soils, ponded. These nearly level soils are in valleys, drainageways, and basins. Some areas are mostly Greenwood soil, some are mostly Ossipee soil, and some are both Greenwood and Ossipee soils. These soils are mapped together because they have no major differences affecting use and management. Areas are long and narrow or irregularly shaped and are 5 to 150 acres in size. Most areas are ponded because beaver dams have raised the water level. The water depth is about 2.5 feet.

Generalized profiles of these soils are as follows:



Inclusions make up about 25 percent of the map unit. Among these are Scarboro, Walpole, and Ridgebury soils in scattered areas throughout the map unit and, in the seacoast region, Scitico, Squamscott, and Maybid soils. In most areas the included soils are ponded.

Soil features affecting use—

Drainage class: very poorly drained
Seasonal high water table: 1 to 4 feet above the surface
Depth to bedrock: more than 60 inches
Permeability: Greenwood—moderate; Ossipee—moderate or moderately slow
Available water capacity: high
Flooding: none
Potential for frost action: high
Shrink-swell potential: Ossipee—low

Most of the acreage of these soils is idle land, but some areas are managed as wildlife habitat. In most areas the soils are classified as wetland.

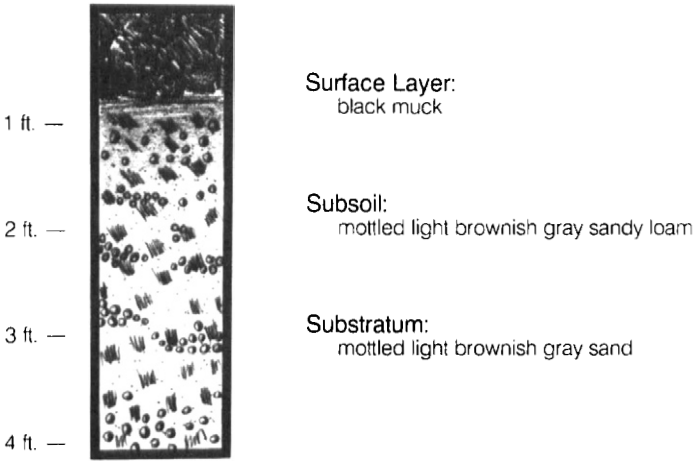
These soils are generally unsuited to woodland. The permanent ponding of the soils prevents the growth of most trees.

These soils are generally unsuited to cultivated crops and forage species. Because of the ponding, the wetness, and frost action, farming is impractical. The soils are covered with water throughout most of the growing season.

These soils are very poorly suited to urban development because of the wetness.

115—Scarboro muck. This nearly level soil is in drainageways between hills and in broad basins on wide plains. Areas are long and narrow or irregularly shaped and are 4 to 40 acres in size.

A generalized profile of this soil is as follows:



Inclusions make up about 20 percent of the map unit. Among these are Pipestone soils near the margins of the mapped areas and Chocorua soils near the central part of the mapped areas.

Soil features affecting use—

Drainage class: very poorly drained
Seasonal high water table: 1 foot above to 1 foot below the surface
Depth to bedrock: more than 60 inches
Permeability: rapid
Available water capacity: very low
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most of the acreage of this soil is idle land, but some areas are used as woodland. In most areas the soil is classified as wetland.

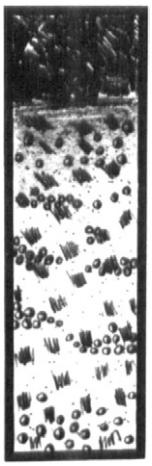
This soil is poorly suited to cultivated crops and forage species. Because of the wetness, the ponding, and frost action, farming is impractical. The soil is wet throughout the growing season, and drainage outlets generally are not available.

This soil is generally unsuited to woodland. It is wet throughout the year. As a result, managing woodland and harvesting trees are difficult. Logging equipment gets bogged down in the soil and leaves it deeply rutted. Tree growth is slow, and the stand is of poor quality.

This soil is very poorly suited to urban development because of the wetness.

125—Scarboro muck, very stony. This nearly level soil is in drainageways between hills. Areas are long and narrow or irregularly shaped and are 4 to 30 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:



Surface Layer:
black muck

Subsoil:
mottled light brownish gray sandy loam

Substratum:
mottled light brownish gray sand

Inclusions make up about 20 percent of the map unit. Among these are Walpole soils near the margins of the mapped areas and Ossipee or Chocorua soils near the central part of the larger mapped areas.

Soil features affecting use—

Drainage class: very poorly drained
Depth to a seasonal high water table: 1 foot above to 1 foot below the surface
Depth to bedrock: more than 60 inches
Permeability: rapid
Available water capacity: very low
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most of the acreage of this soil is idle land, but some areas are used as woodland. In most areas the soil is classified as wetland.

This soil is generally unsuited to cultivated crops and forage species. Because of the surface stones, the wetness, ponding, and frost action, farming is impractical. The soil is wet throughout the growing season, and drainage outlets generally are not available.

This soil is generally unsuited to woodland. It is wet throughout the year. As a result, managing woodland and harvesting trees are difficult. Logging equipment gets bogged down in the soil and leaves it deeply rutted. Tree growth is slow, and the stand is of poor quality.

This soil is very poorly suited to urban development because of the wetness.

129B—Woodbridge fine sandy loam, 3 to 8 percent slopes, very stony. This gently sloping soil is on the tops and sides of smooth, rounded hills that in most places have a northwest orientation. Areas are oval or irregularly shaped and are 4 to 100 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

1 ft. —

2 ft. —

3 ft. —

4 ft. —

Surface Layer:
dark brown fine sandy loam

Subsoil (upper part):
yellowish brown fine sandy loam

Subsoil (lower part):
mottled yellowish brown fine sandy loam

Substratum:
firm mottled light yellowish brown fine sandy loam

Inclusions make up about 25 percent of the map unit. Among these are Ridgebury soils in hollows and drainageways, Paxton soils on knolls and near the margins of the map unit, and Scituate soils in scattered areas throughout the map unit. Also included are soils that have slopes of less than 3 percent or more than 8 percent and areas where less than 0.01 percent of the surface is covered by stones.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: 1.5 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used as woodland.

This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. The soil is wet during the early part of the growing season. Working the soil during wet periods results in the formation of ruts, compaction, and clodding.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of trees on the lot can be maintained by some form of partial cutting, in which only a portion of the trees are removed. Shelterwood cutting, in which half of the trees are removed, is not recommended because strong winds may uproot the remaining trees. A better alternative is improvement cutting, in which only a third of the trees are harvested and thus the hazard of windthrow is reduced. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

This soil is suited to urban development, but the wetness and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

129C—Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony. This strongly sloping soil is on the sides of smooth, rounded hills that in most places have a northwest orientation. Areas are irregularly shaped and are 4 to 150 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown fine sandy loam

Subsoil (upper part):
yellowish brown fine sandy loam

Subsoil (lower part):
mottled yellowish brown fine sandy loam

Substratum:
firm mottled light yellowish brown fine sandy loam

Inclusions make up about 25 percent of the map unit. Among these are Ridgebury soils in drainageways, Paxton soils on knolls and near the margins of the map unit, and Scituate soils in scattered areas throughout the map unit. Also included are soils that have slopes of less than 8 percent or more than 15 percent and areas where less than 0.01 percent of the surface is covered by stones.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: 1.5 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used as woodland.

This soil is poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. The soil is wet during the early part of the growing season. Working the soil during wet periods results in the formation of ruts, compaction, and clodding. Because of the slope, care is needed in operating some types of farm machinery.

This soil is well suited to woodland. The most common trees are eastern white pine, red pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by some form of partial cutting, in which only a portion of the trees are removed. Shelterwood cutting, in which half of the trees are removed, is not recommended because strong winds may uproot the remaining trees. A better alternative is improvement cutting, in which only a third of the trees are harvested and thus the hazard of windthrow is reduced. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development, but the wetness, the slope, and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Because of the slope, cutting and filling are common on construction sites and fill is needed on sites for septic tank absorption fields. Erosion occurs during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. The design of subdivisions should include adequate management of storm water through properly designed ditches, culverts, and catch basins, which help to control erosion once the development is completed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

134—Maybid silt loam. This nearly level soil is in drainageways. Areas are long and narrow and are 4 to 50 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
mottled very dark gray silt loam

Subsoil:
mottled olive gray silty clay loam

Substratum:
mottled gray silty clay

Inclusions make up about 25 percent of the map unit. Among these are Ossipee soils throughout the central part of the mapped areas and Scitico soils near the margins of the mapped areas or on very low rises.

Soil features affecting use—

Drainage class: very poorly drained
Seasonal high water table: 1.0 foot above to 0.5 foot below the surface
Depth to bedrock: more than 60 inches
Permeability: moderately slow or slow
Available water capacity: high
Flooding: none
Potential for frost action: high
Shrink-swell potential: moderate

Most of the acreage of this soil is idle land, but some areas are used as woodland. In most areas the soil is classified as wetland.

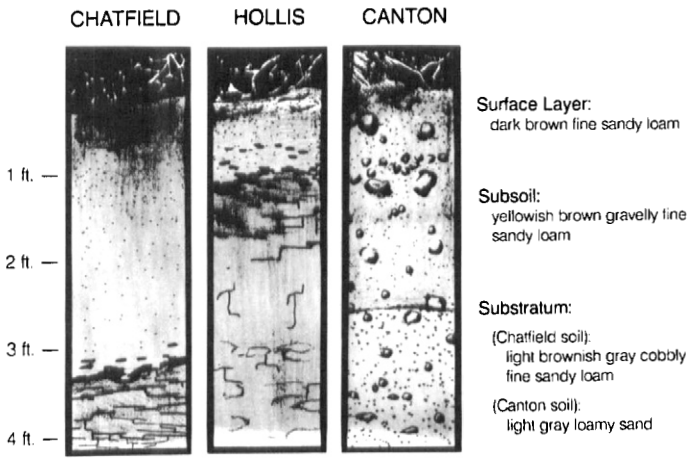
This soil is poorly suited to cultivated crops and forage species. Because of the wetness, ponding, and frost action, farming is impractical. The soil is wet throughout the growing season, and drainage outlets generally are not available.

This soil is generally unsuited to woodland. It is wet throughout the year. As a result, managing woodland and harvesting trees are difficult. Logging equipment gets bogged down in the soil and leaves it deeply rutted. Tree growth is slow, and the stand is of poor quality.

This soil is very poorly suited to urban development because of the wetness.

140B—Chatfield-Hollis-Canton complex, 3 to 8 percent slopes, very stony. These gently sloping soils occur as areas so intermingled that mapping them separately was not practical. They are on low, knobby hills and ridges that in most places have a northeast orientation. Areas are irregularly shaped and are 4 to 400 acres in size. They are about 35 percent Chatfield soil, 20 percent Hollis soil, 20 percent Canton soil, and 25 percent other soils. Stones cover 0.01 to 3 percent of the surface.

Generalized profiles of these soils are as follows:



In some areas, the subsoil of the Chatfield and Hollis soils is redder or the bedrock is softer and more rippable. In other areas the substratum of the Canton soil has less silt and more sand and gravel.

Inclusions make up about 25 percent of the map unit. Among these are Newfields soils in the lower landscape positions, Walpole soils along drainageways, Ossipee and Greenwood soils in hollows, and rock outcrops on the tops of ridges and on slope breaks. Also included are areas of Hoosic soils in the seacoast region and areas of Montauk soils.

Soil features affecting use—

Drainage class: Chatfield and Canton—well drained; Hollis—somewhat excessively drained and well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: Chatfield—20 to 40 inches; Hollis—10 to 20 inches; Canton—more than 60 inches
Permeability: Chatfield and Hollis—moderately rapid; Canton—moderately rapid or rapid
Available water capacity: Chatfield and Canton—moderate; Hollis—very low
Flooding: none
Potential for frost action: Chatfield and Hollis—moderate; Canton—low
Shrink-swell potential: low

Most areas of these soils are used as woodland. Some areas are used for urban development.

These soils are poorly suited to cultivated crops and forage species because of surface stones and outcrops of bedrock. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. The outcrops of bedrock can cause damage to farm machinery. Unless they are removed by blasting, they should be avoided during cultivation. Once the soils are cleared of surface stones, erosion, the depth to bedrock, and the available water capacity are continuing management concerns. Erosion control is critical in maintaining the productivity of the Chatfield and Hollis soils because of the depth to bedrock. The available water capacity in the Chatfield and Hollis soils can be improved by adding organic material, such as manure. Crops that are tolerant of droughty conditions should be selected for planting.

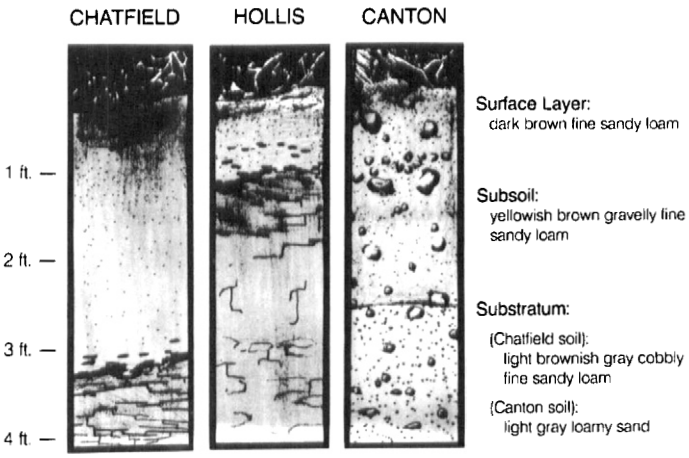
These soils are suited to woodland. The most common trees are eastern white pine and northern red oak. The trees are of low quality, and the stands will not be densely stocked. If properly managed, the soils are suitable for the production of fuelwood and can provide habitat for wildlife. In areas managed for fuelwood, scattered ribbon-shaped or kidney-shaped clearcuts should be established throughout the lot. The clearcuts should be no more than 200 feet across. The small clearcuts can reduce the hazard of windthrow and provide a varied habitat for wildlife. Harvesting methods that leave a diversity of trees, such as snag trees, trees with cavities, and a variety of size classes, improve the habitat for wildlife. For a short period in early spring, the soils are wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soils are drier and the beds of intermittent streams are dry.

These soils are suited to urban development. Because of the depth to bedrock, careful selection of sites for septic systems and buildings is important. Where bedrock is encountered and areas of deeper soils are not available for use as building sites, blasting may be necessary before basements are constructed and fill may be needed to raise septic systems above

the bedrock. Blasting also may be necessary during the construction of roads. Runoff is more rapid and more concentrated on these soils than on deeper soils and results in erosion in disturbed areas. Common erosion- and sediment-control measures are hay-bale sediment traps and a good plant cover. The increased runoff rate should be considered when storm water management is planned. If necessary, the plans should include control of waterflow by catch basins, ditches, culverts, riprap, and a good plant cover. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established unless bedrock is close to the surface. If bedrock is within a few inches of the surface, the soils are droughty and mulching and frequent watering may be required.

140C—Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, very stony. These strongly sloping soils occur as areas so intermingled that mapping them separately was not practical. They are on knobby hills and ridges that in most places have a northeast orientation. Areas are oval or irregularly shaped and are 4 to 600 acres in size. They are about 35 percent Chatfield soil, 20 percent Hollis soil, 20 percent Canton soil, and 25 percent other soils. Stones cover 0.01 to 3 percent of the surface.

Generalized profiles of these soils are as follows:



In some areas, the subsoil of the Chatfield and Hollis soils is redder or the bedrock is softer and more rippable. In other areas the substratum of the Canton soil has less silt and more sand and gravel.

Inclusions make up about 25 percent of the map unit. Among these are Newfields soils between knobs; Walpole soils along drainageways; Scarboro, Ossipee, and Greenwood soils in hollows; and rock outcrops on the tops of ridges and on slope breaks. Also included are small areas of Hoosic soils in the seacoast region, small areas of Montauk soils, and small areas of soils that have slopes of less than 8 percent or more than 15 percent.

Soil features affecting use—

Drainage class: Chatfield and Canton—well drained; Hollis—somewhat excessively drained and well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: Chatfield—20 to 40 inches; Hollis—10 to 20 inches; Canton—more than 60 inches
Permeability: Chatfield and Hollis—moderately rapid; Canton—moderately rapid or rapid
Available water capacity: Chatfield and Canton—moderate; Hollis—very low
Flooding: none
Potential for frost action: Chatfield and Hollis—moderate; Canton—low
Shrink-swell potential: low

Most areas of these soils are used as woodland. Some areas are used for urban development.

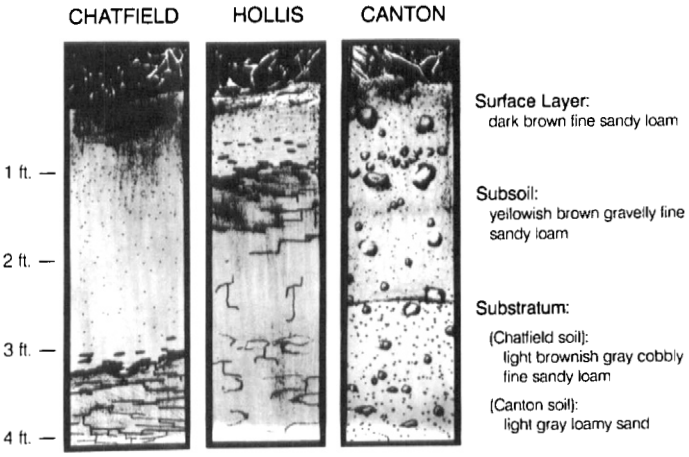
These soils are poorly suited to cultivated crops and forage species because of surface stones and outcrops of bedrock. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. The outcrops of bedrock can cause damage to farm machinery. Unless they are removed by blasting, they should be avoided during cultivation. Once the soils are cleared of surface stones, erosion, the depth to bedrock, the slope, and the available water capacity are continuing management concerns. Erosion control is critical in maintaining the productivity of the Chatfield and Hollis soils because of the depth to bedrock. Because of the slope, care is needed in operating some types of farm machinery. The available water capacity in the Chatfield and Hollis soils can be improved by adding organic material, such as manure. Crops that are tolerant of droughty conditions should be selected for planting.

These soils are suited to woodland. The most common trees are eastern white pine and northern red oak. The trees are of low quality, and the stands will not be densely stocked. If properly managed, the soils are suitable for the production of fuelwood and can provide habitat for wildlife. In areas managed for fuelwood, scattered ribbon-shaped or kidney-shaped clearcuts should be established throughout the lot. The clearcuts should be no more than 200 feet across. The small clearcuts can reduce the hazard of windthrow and provide a varied habitat for wildlife. Harvesting methods that leave a diversity of trees, such as snag trees, trees with cavities, and a variety of size classes, improve the habitat for wildlife. For a short period in early spring, the soils are wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soils are drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

These soils are suited to urban development. Because of the depth to bedrock, careful selection of sites for septic systems and buildings is important. Where bedrock is encountered and areas of deeper soils are not available for use as building sites, blasting may be necessary before basements are constructed and fill may be needed to raise septic systems above the bedrock. Blasting also may be necessary during the construction of roads. Runoff is more rapid and more concentrated on these soils than on deeper soils and results in erosion in disturbed areas. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. The increased runoff should be considered when storm water management is planned. If necessary, the plans should include control of waterflow by catch basins, ditches, culverts, riprap, and a good plant cover. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established unless bedrock is close to the surface. If bedrock is within a few inches of the surface, the soils are droughty and mulching and frequent watering may be required.

140D—Chatfield-Hollis-Canton complex, 15 to 35 percent slopes, very stony. These moderately steep and steep soils occur as areas so intermingled that mapping them separately was not practical. They are on the sides of knobby hills and ridges that in most places have a northeast orientation. Areas are long and narrow or irregularly shaped and are 4 to 200 acres in size. They are about 35 percent Chatfield soil, 20 percent Hollis soil, 20 percent Canton soil, and 25 percent other soils. Stones cover 0.01 to 3 percent of the surface.

Generalized profiles of these soils are as follows:



In some areas, the subsoil of the Chatfield and Hollis soils is redder or the bedrock is softer and more rippable. In other areas the substratum of the Canton soil has less silt and more sand and gravel.

Inclusions make up about 25 percent of the map unit. Among these are Walpole soils along drainageways; Scarboro, Ossipee, and Greenwood soils in hollows; rock outcrops on slope breaks; and Montauk soils in areas throughout the map unit. Also included are soils that have slopes of less than 15 percent or more than 35 percent.

Soil features affecting use—

Drainage class: Chatfield and Canton—well drained; Hollis—somewhat excessively drained and well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: Chatfield—20 to 40 inches; Hollis—10 to 20 inches; Canton—more than 60 inches
Permeability: Chatfield and Hollis—moderately rapid; Canton—moderately rapid or rapid
Available water capacity: Chatfield and Canton—moderate; Hollis—very low
Flooding: none
Potential for frost action: Chatfield and Hollis—moderate; Canton—low
Shrink-swell potential: low

Most areas of these soils are used as woodland.

These soils are poorly suited to cultivated crops and forage species because of surface stones and outcrops of bedrock. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. The outcrops of bedrock can cause damage to farm machinery. Unless they are removed by blasting, they should be avoided during cultivation. Once the soils are cleared of surface stones, erosion, the depth to bedrock, the slope, and the available water capacity are continuing management concerns. Erosion control is critical in maintaining the productivity of the Chatfield and Hollis soils because of the depth to bedrock. Because of the slope, operating most types of farm machinery is difficult or impractical and can be hazardous. The available water capacity in the Chatfield and Hollis soils can be improved by adding organic material, such as manure. Crops that are tolerant of droughty conditions should be selected for planting.

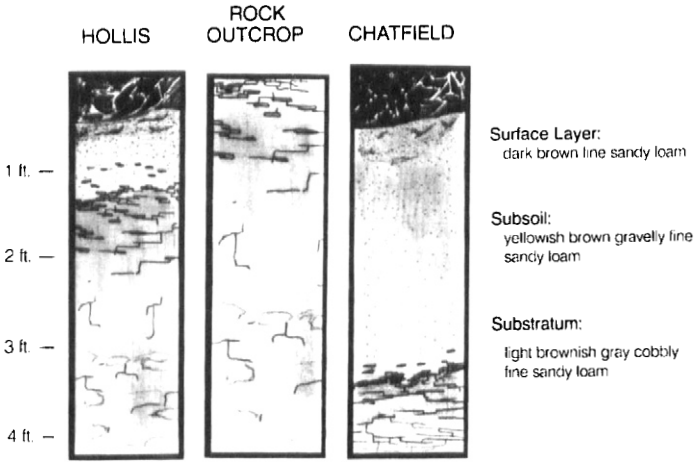
These soils are suited to woodland. The most common trees are eastern white pine and northern red oak. The trees are of low quality, and the stands will not be densely stocked. If properly managed, the soils are suitable for the production of fuelwood and can provide habitat for wildlife. In areas managed for fuelwood, scattered ribbon-shaped or kidney-shaped clearcuts should be established throughout the lot. The clearcuts should be no more than 200 feet across. The small clearcuts can reduce the hazard of windthrow and provide a varied habitat for wildlife. Harvesting methods that leave a diversity of trees, such as snag trees, trees with cavities, and a variety of size classes, improve the habitat for wildlife. For a short period in early spring, the soils are wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soils are drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as benching of logging roads into the hillside, water bars, stone fords, culverts, roadside ditches, and a permanent plant cover.

These soils are poorly suited to urban development.

Because of the depth to bedrock, careful selection of sites for septic systems and buildings is important. Where bedrock is encountered and areas of deeper soils are not available for use as building sites, blasting may be necessary before basements are constructed and fill may be needed to raise septic systems above the bedrock. Blasting also may be necessary during the construction of roads. Because of the slope, extensive cutting and filling commonly are needed. Care is needed during cutting and filling to keep machinery from turning over. Fill can be used to level sites for septic tank absorption fields, but some areas are too steep for leveling. Erosion is a hazard during earth-moving operations. Because of the slope, controlling erosion can be difficult. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. Runoff is more rapid and more concentrated on these soils than on deeper soils and results in erosion in disturbed areas. Constructing streets on the contour can reduce road grades and the runoff rate. The increased runoff rate should be considered when storm water management is planned. If necessary, the plans should include control of waterflow by catch basins, ditches, culverts, riprap, and a good plant cover. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established unless bedrock is close to the surface. If bedrock is within a few inches of the surface, the soils are droughty and mulching and frequent watering may be required.

141E—Hollis-Rock outcrop-Chatfield complex, 15 to 60 percent slopes. This map unit consists of moderately steep to very steep Hollis and Chatfield soils intermingled with Rock outcrop. The Hollis and Chatfield soils and Rock outcrop occur as areas so intermingled that mapping them separately was not practical. The map unit is on the sides of mountains, hills, and ridges. Areas are long and narrow or irregularly shaped and are 4 to 300 acres in size. They are about 35 percent Hollis soil, 30 percent Rock outcrop, 15 percent Chatfield soil, and 20 percent other soils. Stones cover more than 0.01 percent of the surface.

Generalized profiles of the Hollis and Chatfield soils are as follows:



In some areas the subsoil is redder.

Inclusions make up about 20 percent of the map unit. Among these are Canton and Montauk soils in scattered areas throughout the map unit; Walpole soils along drainageways; and Scarboro, Ossipee, and Greenwood soils in hollows. Also included are small areas of talus at the base of back slopes.

Features of the Hollis and Chatfield soils affecting use—

Drainage class: Hollis—somewhat excessively drained and well drained; Chatfield—well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: Hollis—10 to 20 inches; Chatfield—20 to 40 inches
Permeability: moderately rapid
Available water capacity: Hollis—very low; Chatfield—moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this map unit are used as woodland.

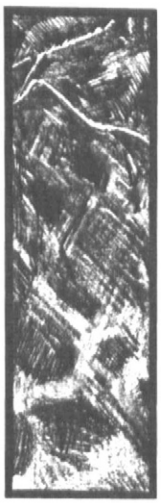
The Hollis and Chatfield soils are unsuited to cultivated crops and forage species. Because of bedrock outcrops, the slope, the surface stones, the depth to bedrock, the available water capacity, and the hazard of erosion, farming is impractical.

The Hollis and Chatfield soils are generally unsuited to woodland. Most trees grow poorly. Because of the slope, the bedrock outcrops, and low yields, logging is impractical.

The Hollis and Chatfield soils are very poorly suited to urban development because of the slope.

295—Greenwood mucky peat. This nearly level soil is in basins, hollows, and drainageways. Areas are oval or irregularly shaped and are 4 to 200 acres in size.

A generalized profile of this soil is as follows:



1 ft. —

2 ft. —

3 ft. —

4 ft. —

Surface Layer:
black mucky peat

Subsoil:
dark reddish brown mucky peat

Substratum:
dark reddish brown mucky peat

Inclusions make up about 20 percent of the map unit. Among these are Chocorua and Ossipee soils in scattered areas throughout the map unit and Scarboro soils near the margins of the map unit.

Soil features affecting use—

Drainage class: very poorly drained
Depth to a seasonal high water table: 1.0 foot above to 0.5 foot below the surface
Depth to bedrock: more than 60 inches
Permeability: moderate
Available water capacity: high
Flooding: none
Potential for frost action: high

Most of the acreage of this soil is idle land, but some areas are used as woodland. In most areas the soil is classified as wetland.

This soil is generally unsuited to cultivated crops and forage species. Because of the wetness, ponding, low strength, and frost action, farming is impractical. The soil is wet throughout the growing season, and drainage outlets generally are not available.

This soil is generally unsuited to woodland. It is wet throughout the year. As a result, managing woodland and harvesting trees are difficult. Logging equipment gets bogged down in the soil and leaves it deeply rutted. Tree growth is slow, and the stand is of poor quality.

This soil is very poorly suited to urban development because of the wetness.

Figure 1.—An area of Pits, sand and gravel.

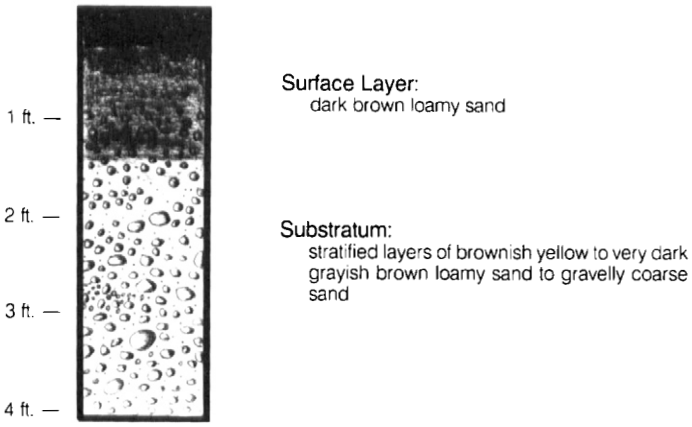
298—Pits, sand and gravel. This map unit consists of active or recently abandoned gravel pits, sand pits, clay pits, and areas that are mined for topsoil or roadfill (fig. 1). Areas are irregularly shaped and are 4 to 150 acres in size. Most are nearly devoid of vegetation.

Inclusions make up about 10 percent of the map unit. They consist of areas of soil or water.

This map unit is generally unsuited to cultivated crops, forage species, and woodland. Onsite investigation is needed to ascertain the suitability for urban uses because the limitations affecting these uses vary from area to area.

299—Udorthents, smoothed. These soils are in areas that have been excavated and regraded or that have been filled with soil material and graded. Areas are rectangular or irregularly shaped and are 4 to 20 acres in size. Most support vegetation.

A generalized profile of these soils is as follows:



Inclusions make up about 15 percent of the map unit. Among these are natural soils near the margins of the map unit, parking lots and other areas that have an impervious surface, and upgraded areas.

Soil features affecting use—

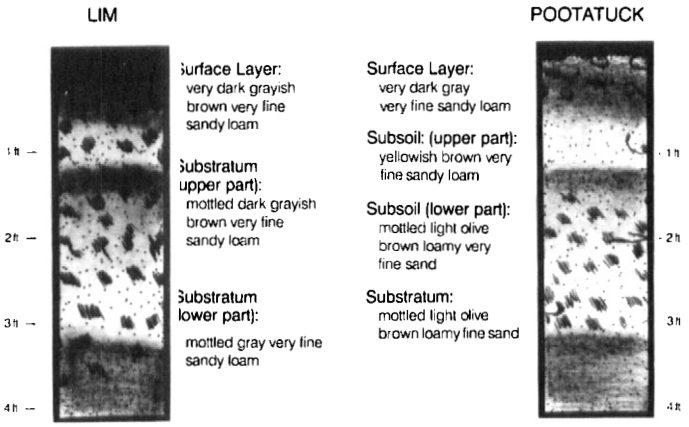
Drainage class: poorly drained to excessively drained
Depth to a seasonal high water table: 0 to more than 6 feet
Depth to bedrock: 10 to more than 60 inches
Permeability: slow to very rapid
Available water capacity: very low to high
Flooding: none
Potential for frost action: low to high
Shrink-swell potential: low or moderate

These soils are used for urban development or landfills or are left idle.

The suitability of these soils for crops, forage, and woodland varies, depending on the degree to which the surface is disturbed. The soil limitations vary so much that the suitability for urban development cannot be specified. Onsite investigation is needed.

305—Lim-Pootatuck complex. These nearly level soils occur as areas so intermingled that mapping them separately was not practical. They are on flood plains. Areas are long and narrow or irregularly shaped and are 4 to 50 acres in size. They are about 50 percent Lim soil, 35 percent Pootatuck soil, and 15 percent other soils.

Generalized profiles of these soils are as follows:



Inclusions make up about 15 percent of the map unit. Among these are soils that have an organic surface layer overlying a mineral substratum and soils that have thick organic layers.

Soil features affecting use—

Drainage class: Lim—poorly drained; Pootatuck—moderately well drained
Depth to a seasonal high water table: Lim—0 to 1.5 feet; Pootatuck—1.5 to 2.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and rapid in the lower part
Available water capacity: moderate
Flooding: frequent
Potential for frost action: Lim—high; Pootatuck—moderate
Shrink-swell potential: low

Most areas of these soils are used as woodland. In most places the soils are classified as wetland and as flood-hazard areas.

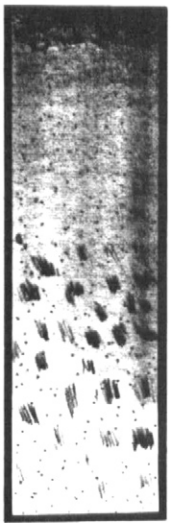
These soils are suited to cultivated crops and forage species, but they are wet and subject to flooding during the early part of the growing season. The wetness and the flooding hamper early planting of the crops that require a long growing season. Although a subsurface drainage system is not efficient in these soils, open drainage ditches and land grading can reduce the wetness once floodwater has receded. Early planting should be avoided. Perennial plants that can withstand wetness should be selected for planting. Grazing of undrained pasture should be delayed until the soils dry out.

These soils are suited to woodland. The most common trees are red maple and eastern white pine. The trees are of low quality, though the stands may be densely stocked and yields may be high. The site conditions favor the production of fuelwood. In areas managed for fuelwood, scattered ribbon-shaped or kidney-shaped clearcuts should be established throughout the lot. The clearcuts should be no more than 200 feet across. The small clearcuts can reduce the hazard of windthrow and provide a varied habitat for wildlife. The soils are wet and sometimes flooded in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soils are drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down. Various species of wildlife are attracted to areas of these soils. Harvesting methods that leave a diversity of trees, such as snag trees, trees with cavities, and a variety of size classes, improve the habitat for wildlife.

These soils are poorly suited to urban development. In spring and fall, they may be flooded by the adjacent streams and rivers.

313A—Deerfield fine sandy loam, 0 to 3 percent slopes. This nearly level soil is in the slightly higher landscape positions on broad, low plains and on low rises in drainageways. Areas are irregularly shaped and are 4 to 150 acres in size.

A generalized profile of this soil is as follows:



Surface Layer:
dark brown fine sandy loam

Subsoil:
yellowish brown loamy sand

Substratum:
mottled yellowish brown sand

Inclusions make up about 20 percent of the map unit. Among these are Pipestone soils in hollows and drainageways and Windsor soils on the higher rises and knolls. Also included, in the coastal region, are Squamscott soils in drainageways and Eldridge soils in scattered areas.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: 1.5 to 3.0 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: low
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for urban development.

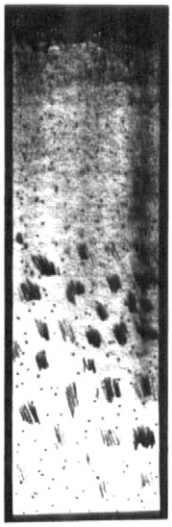
This soil is suited to cultivated crops and forage species, but it is wet in early spring. The wetness hampers early planting of the crops that require a long growing season. Working the soil during wet periods results in the formation of ruts and compaction. If the wetness in areas of cropland is reduced by a subsurface drainage system, the crops can be planted on schedule. In pastured areas, where a subsurface drainage system is not economically feasible, open drainage ditches can reduce the wetness. Farm machinery should not be used when the soil is wet. Because of the sandy texture, the soil may be droughty in summer. Certain crops, such as vegetables, may require irrigation in summer to maintain yields.

This soil is well suited to woodland. The most common trees are eastern white pine, red maple, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Management that favors the regeneration of white pine includes cuttings in which only a portion of the trees are harvested. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as pruning. Because of the sandy texture, water moves downward through the soil quickly and the trees can be harvested any time of the year, except for a short period in early spring. Wet, narrow drainageways extend through areas of this soil. If possible, skid trails should be routed around these drainageways.

This soil is suited to urban development, but the wetness in early spring, a poor filtering capacity, and frost action are limitations. Footing drains can help to keep cellars dry if drainage outlets are available. If outlets are not available, sump pumps may be needed. Fill is generally used to raise septic tank absorption fields above the seasonal high water table. Because of the sandy texture, the soil is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too fast to be adequately purified before reaching the water table. Care is needed in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving.

313B—Deerfield fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is on the lower side slopes of hills and on low rises on broad, low plains. Areas are irregularly shaped and are 4 to 200 acres in size.

A generalized profile of this soil is as follows:



1 ft. —

2 ft. —

3 ft. —

4 ft. —

Surface Layer:
dark brown fine sandy loam

Subsoil:
yellowish brown loamy sand

Substratum:
mottled yellowish brown sand

Inclusions make up about 20 percent of the map unit. Among these are Pipestone soils in drainageways and hollows and Windsor soils on knolls. Also included are Eldridge soils in scattered areas throughout the seacoast region.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: 1.5 to 3.0 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: low
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for urban development.

This soil is suited to cultivated crops and forage species, but it is wet in early spring. The wetness hampers early planting of the crops that require a long growing season. Working the soil during wet periods results in the formation of ruts and compaction. If the wetness in areas of cropland is reduced by a subsurface drainage system, the crops can be planted on schedule. In pastured areas, where a subsurface drainage system is not economically feasible, open drainage ditches can reduce the wetness. Farm machinery should not be used when the soil is wet. Because of the sandy texture, the soil may be droughty in summer. Certain crops, such as vegetables, may require irrigation in summer to maintain yields. Because of the slope, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures.

This soil is well suited to woodland. The most common trees are eastern white pine, red maple, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Management that favors the regeneration of white pine includes cuttings in which only a portion of the trees are harvested. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as pruning. Because of the sandy texture, water moves downward through the soil quickly and the trees can be harvested any time of the year, except for a short period in early spring. Wet, narrow drainageways extend through areas of this soil. If possible, skid trails should be routed around these drainageways.

This soil is suited to urban development, but the wetness in early spring, a poor filtering capacity, and frost action are limitations. Footing drains can help to keep cellars dry, though sump pumps may still be needed. Fill is generally used to raise septic systems above the seasonal high water table. Because of the sandy texture, the soil is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too fast to be adequately purified before reaching the water table. Care is needed in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover.

314A—Pipestone sand, 0 to 5 percent slopes. This nearly level and gently sloping soil is in broad basins and drainageways of wide plains and in narrow drainageways between hills. Areas are irregularly shaped and are 4 to 150 acres in size. In most places, the surface has scattered low hummocks less than 1 foot in height.

A generalized profile of this soil is as follows:

Inclusions make up about 25 percent of the map unit. Among these are Deerfield soils on low rises, Scarboro and Chocorua soils in basins and drainageways, and soils that have a cemented layer at a depth of about 1 foot. Also included, in the seacoast region, are Squamscott soils and soils that have a loamy substratum at a depth of more than 40 inches.

Soil features affecting use—

Drainage class: somewhat poorly drained
Depth to a seasonal high water table: 0.5 foot to 1.5 feet
Depth to bedrock: more than 60 inches
Permeability: rapid
Available water capacity: low
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland. In places the soil is classified as wetland.

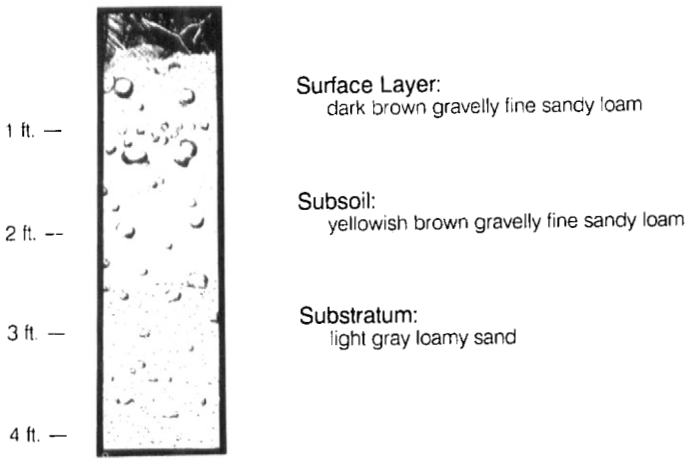
This soil is poorly suited to cultivated crops and forage species. It is wet in spring. The wetness hampers early planting of the crops that require a long growing season. Working the soil during wet periods results in the formation of ruts and compaction. If the wetness in areas of cropland is reduced by a subsurface drainage system, the crops can be planted on schedule. Land grading also can reduce the wetness. Grazing of undrained pasture should be delayed until the soil dries out. Farm machinery should not be used when the soil is wet. Because of the sandy texture, the soil may be droughty in summer. Certain crops, such as vegetables, may require irrigation in summer to maintain yields.

This soil is suited to woodland. The most common trees are red maple, eastern white pine, and northern red oak. Areas of this soil can be good sites for white pine and produce high-quality pine sawlogs, but hardwoods may dominate the site or may be introduced through management practices. For example, after an area has been clearcut, red maple, elm, and other hardwoods will reseed rather than white pine. An alternative that would favor the regeneration of white pine is improvement cutting, in which approximately a third of the trees are harvested. Shelterwood cutting, in which half of the trees are removed, is not recommended because of the hazard of windthrow. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. If hardwoods dominate the site, the area can be managed for fuelwood. Small, ribbon-shaped or kidney-shaped clearcuts in scattered areas throughout the lot can reduce the hazard of windthrow and provide a varied habitat for wildlife. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

This soil is poorly suited to urban development. The wetness, a poor filtering capacity, and frost action are limitations. Footing drains can help to keep cellars dry if drainage outlets are available. If outlets are not available, sump pumps may be needed. Fill is generally used to raise septic systems above the seasonal high water table. Because of the sandy texture, the soil is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too fast to be adequately purified before reaching the water table. Care is needed in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings.

343C—Canton gravelly fine sandy loam, 8 to 15 percent slopes, extremely bouldery. This strongly sloping soil is on knolls and ridges. Areas are oval or irregularly shaped and are 30 to 200 acres in size. Boulders and stones cover 3 to 15 percent of the surface.

A generalized profile of this soil is as follows:



In some areas the substratum has less silt and more sand and gravel.

Inclusions make up about 15 percent of the map unit. Among these are Chatfield soils and rock outcrops on ridges and Newfields and Walpole soils in hollows and drainageways.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for recreational purposes.

This soil is generally unsuited to cultivated crops and forage species because of surface stones and boulders. Heavy equipment is needed to remove the boulders. Blasting is necessary to reduce some of the boulders to a manageable size. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. Because of the slope, care is needed in operating some types of farm machinery.

This soil is well suited to woodland. The most common trees are eastern white pine and northern red oak. Areas of this soil are good sites for the production of sawlogs or fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting, in which only a portion of the trees are removed. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover. Surface boulders can hinder logging. Harvesting in winter, when the boulders are partially covered by snow, allows easier movement of logging equipment around the lot.

This soil is suited to urban development. The numerous surface boulders affect the selection of sites for septic systems, roads, and buildings. Many of the boulders can be removed by heavy equipment. Blasting is necessary to reduce some of the boulders to a manageable size. Because of the slope, cutting and filling are needed to level sites for septic tank absorption fields. Care is needed in excavating the soil because steep cutbanks may cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. If erosion is to be controlled once the development is completed, the design of subdivisions should include adequate management of storm water through properly designed ditches, culverts, riprap, a good plant cover, and catch basins. Because of the surface stones and boulders, establishing and maintaining lawns can be difficult.

343D—Canton gravelly fine sandy loam, 15 to 35 percent slopes, extremely bouldery. This moderately steep and steep soil is on the back slopes of ridges, knolls, and hills. Areas are long and narrow or irregularly shaped and are 20 to 300 acres in size. In the long and narrow areas, the long axis is oriented north to south. Boulders and stones cover 3 to 15 percent of the surface.

A generalized profile of this soil is as follows:

1 ft. —

2 ft. —

3 ft. —

4 ft. —

Surface Layer:
dark brown gravelly fine sandy loam

Subsoil:
yellowish brown gravelly fine sandy loam

Substratum:
light gray loamy sand

In some areas the substratum has less silt and more sand and gravel.

Inclusions make up about 25 percent of the map unit. Among these are Chatfield soils and rock outcrops on ridges and Newfields and Walpole soils in hollows and drainageways.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for recreational purposes.

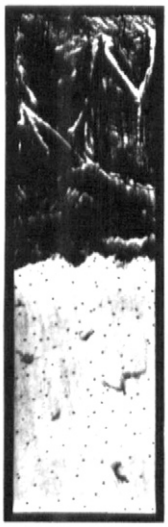
This soil is generally unsuited to cultivated crops and forage species because of surface stones and boulders. Because of the slope, operating most types of farm machinery is difficult or impractical and can be hazardous.

This soil is well suited to woodland. The most common trees are eastern white pine and northern red oak. Areas of this soil are good sites for the production of sawlogs or fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting, in which only a portion of the trees are removed. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as benching of logging roads into the hillside, water bars, stone fords, culverts, roadside ditches, and a permanent plant cover. Surface boulders can hinder logging. Harvesting in winter, when the boulders are partially covered by snow, allows easier movement of logging equipment around the lot.

This soil is poorly suited to urban development. The numerous surface boulders affect the selection of sites for septic systems, roads, and buildings. Many of the boulders can be removed by heavy equipment. Blasting is necessary to reduce some of the boulders to a manageable size. Because of the slope, extensive cutting and filling commonly are needed. Care is needed during cutting and filling to keep machinery from turning over. Fill can be used to level sites for septic tank absorption fields, but some areas are too steep for leveling. Erosion can occur during earth-moving operations. Because of the slope, controlling erosion can be difficult. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. Constructing streets on the contour can reduce the road grades and the runoff rate. Because of the slope, storm water management should include erosion-control measures, such as catch basins, ditches, culverts, riprap, and a good plant cover. Care is needed in excavating the soil because steep cutbanks can cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Because of the surface stones and boulders, establishing and maintaining lawns can be difficult.

395—Chocorua mucky peat. This nearly level soil is in hollows, valleys, basins, and drainageways. Areas are irregularly shaped and are 4 to 150 acres in size.

A generalized profile of this soil is as follows:



1 ft. —

2 ft. —

3 ft. —

4 ft. —

Surface Layer:
dark reddish brown mucky peat

Subsoil:
dark reddish brown mucky peat

Substratum:
light brownish gray coarse sand

Inclusions make up about 20 percent of the map unit. Among these are Scarboro, Walpole, and Pipestone soils near the margins of the map unit; Deerfield soils on low rises or knolls; and Greenwood soils near the center of the mapped areas.

Soil features affecting use—

Drainage class: very poorly drained
Seasonal high water table: 1.0 foot above to 0.5 foot below the surface
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and rapid in the lower part
Available water capacity: high
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most of the acreage of this soil is idle land, but some areas are used as woodland. In most places the soil is classified as wetland.

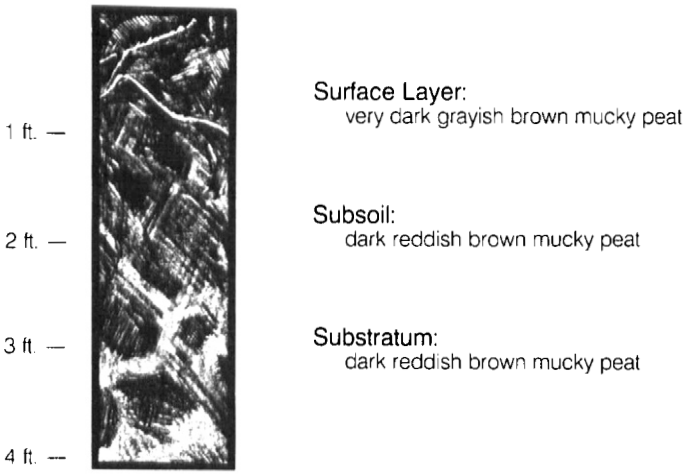
This soil is unsuited to cultivated crops and forage species. Because of the wetness, ponding, low strength, and frost action, farming is impractical. The soil is wet throughout the growing season, and drainage outlets generally are not available.

This soil is generally unsuited to woodland. It is wet throughout the year. As a result, managing woodland and harvesting trees are difficult. Logging equipment gets bogged down in the soil and leaves it deeply rutted. Tree growth is slow, and the stand is of poor quality.

This soil is very poorly suited to urban development because of the wetness.

397—Ipswich mucky peat. This nearly level soil is in tidal marshes. Areas are irregularly shaped and are 4 to 1,000 acres in size. The content of salts in the soil is more than 1 percent.

A generalized profile of this soil is as follows:



Inclusions make up about 10 percent of the map unit. Among these are Pawcatuck soils near the central part of the marshes and Westbrook soils near the margins of the marshes.

Soil features affecting use—

Drainage class: very poorly drained
Seasonal high water table: at the surface or as much as 1 foot above the surface
Depth to bedrock: more than 60 inches
Permeability: moderate
Available water capacity: high
Flooding: frequent
Potential for frost action: high

Most areas of this soil are used as wildlife habitat. In most places the soil is classified as wetland.

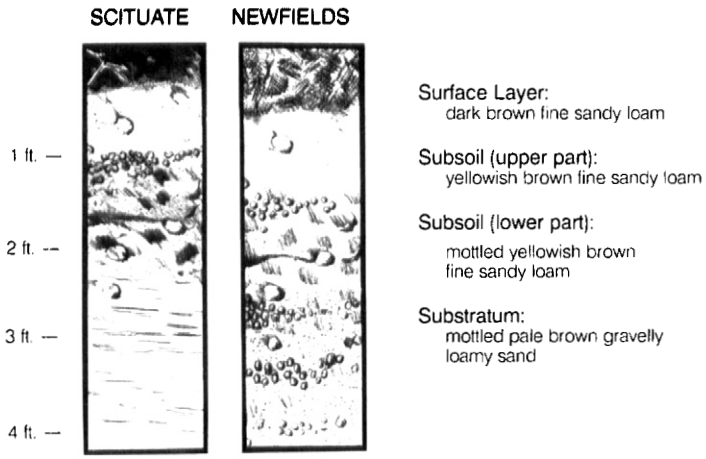
This soil is generally unsuited to woodland. Because of the frequent flooding and high salinity, trees cannot grow in the tidal marshes.

This soil is unsuited to cultivated crops and forage species. Because of the periodic flooding by tidal seawater, the wetness, low strength, and the content of salts, farming is impractical. The only suitable plants are those that can withstand a high content of salts.

This soil is very poorly suited to urban development because of the tidal flooding.

446A—Scituate-Newfields complex, 0 to 3 percent slopes. These nearly level soils occur as areas so intermingled that mapping them separately was not practical. They are on the lower side slopes of hills and on low knolls. Areas are long and narrow or irregularly shaped and are 5 to 150 acres in size. They are about 50 percent Scituate soil, 25 percent Newfields soil, and 25 percent other soils.

Generalized profiles of these soils are as follows:



Inclusions make up about 25 percent of the map unit. Among these are Walpole and Ridgebury soils in drainageways and Canton, Montauk, and Paxton soils on knolls and the higher side slopes.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: Scituate—1.5 to 3.0 feet; Newfields—2.0 to 4.0 feet
Depth to bedrock: more than 60 inches
Permeability: Scituate—moderate in the upper part of the profile and slow in the lower part; Newfields—moderate
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of these soils are used as woodland. Some areas are used for cultivated crops or forage. In most areas the soils are considered prime farmland.

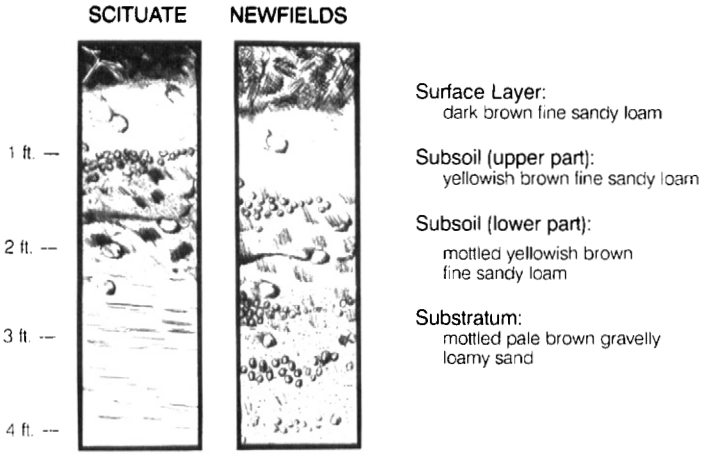
These soils are well suited to cultivated crops and forage species, but they are wet during the early part of the growing season. The wetness hampers early planting of the crops that require a long growing season. Working the soils during wet periods results in the formation of ruts, compaction, and clodding. If the wetness in areas of cropland is reduced by land shaping and grading and by a subsurface drainage system, spring planting can begin on schedule. Grazing of undrained pasture should be delayed until the soils dry out. Farm machinery should not be used when the soils are wet.

These soils are well suited to woodland. The most common trees are red maple, eastern white pine, red pine, sugar maple, and northern red oak. Areas of these soils are good sites for the production of sawlogs and fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by some form of partial cutting, in which only a portion of the trees are removed. Shelterwood cutting, in which half of the trees are removed, is not recommended because strong winds may uproot the remaining trees. A better alternative is improvement cutting, in which only a third of the trees are harvested and thus the hazard of windthrow is reduced. The soils are wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soils are drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

These soils are suited to urban development, but the wetness and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Care is needed in excavating the soils because steep cutbanks may cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing.

446B—Scituate-Newfields complex, 3 to 8 percent slopes. These gently sloping soils occur as areas so intermingled that mapping them separately was not practical. They are on the lower side slopes of hills and on low knolls. Areas are long and narrow or irregularly shaped and are 5 to 50 acres in size. They are about 50 percent Scituate soil, 25 percent Newfields soil, and 25 percent other soils.

Generalized profiles of these soils are as follows:



Inclusions make up about 25 percent of the map unit. Among these are Walpole and Ridgebury soils in drainageways and Canton, Montauk, and Paxton soils on knolls and the higher side slopes.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: Scituate—1.5 to 3.0 feet; Newfields—2.0 to 4.0 feet
Depth to bedrock: more than 60 inches
Permeability: Scituate—moderate in the upper part of the profile and slow in the lower part; Newfields—moderate
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of these soils are used as woodland. Some areas are used for cultivated crops or forage. In most areas the soils are considered prime farmland.

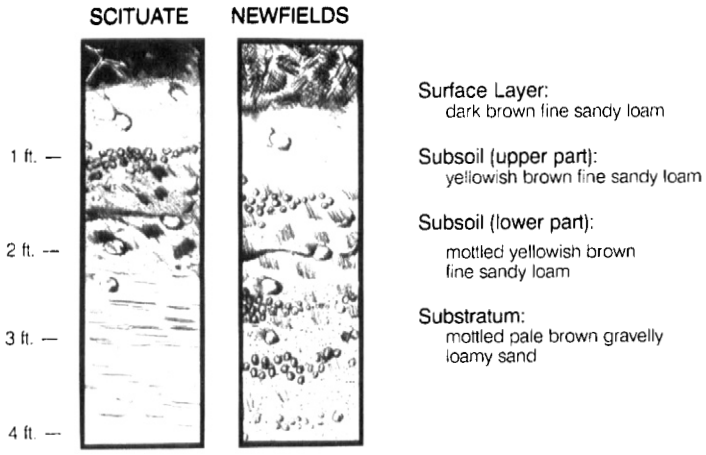
These soils are well suited to cultivated crops and forage species, but they are wet during the early part of the growing season. The wetness hampers early planting of the crops that require a long growing season. Working the soils during wet periods results in the formation of ruts, compaction, and clodding. If the wetness in areas of cropland is reduced by land shaping and grading and by a subsurface drainage system, spring planting can begin on schedule. Grazing of undrained pasture should be delayed until the soils dry out. Farm machinery should not be used when the soils are wet. Because of the slope, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures.

These soils are well suited to woodland. The most common trees are red maple, eastern white pine, red pine, sugar maple, and northern red oak. Areas of these soils are good sites for the production of sawlogs and fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by some form of partial cutting, in which only a portion of the trees are removed. Shelterwood cutting, in which half of the trees are removed, is not recommended because strong winds may uproot the remaining trees. A better alternative is improvement cutting, in which only a third of the trees are harvested and thus the hazard of windthrow is reduced. The soils are wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soils are drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

These soils are suited to urban development, but the wetness and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover. Care is needed in excavating the soils because steep cutbanks may cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing.

447A—Scituate-Newfields complex, 0 to 3 percent slopes, very stony. These nearly level soils occur as areas so intermingled that mapping them separately was not practical. They are on the lower side slopes of hills, on wide plains, and on low knolls. Areas are long and narrow or irregularly shaped and are 5 to 250 acres in size. They are about 50 percent Scituate soil, 25 percent Newfields soil, and 25 percent other soils. Stones cover 0.01 to 3 percent of the surface.

Generalized profiles of these soils are as follows:



Inclusions make up about 25 percent of the map unit. Among these are Walpole and Ridgebury soils in drainageways and Canton and Montauk soils on knolls and the higher side slopes. Also included in some areas are soils that are less than 60 inches deep over bedrock.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: Scituate—1.5 to 3.0 feet; Newfields—2.0 to 4.0 feet
Depth to bedrock: more than 60 inches
Permeability: Scituate—moderate in the upper part of the profile and slow in the lower part; Newfields—moderate
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of these soils are used as woodland. Some areas are used for urban development.

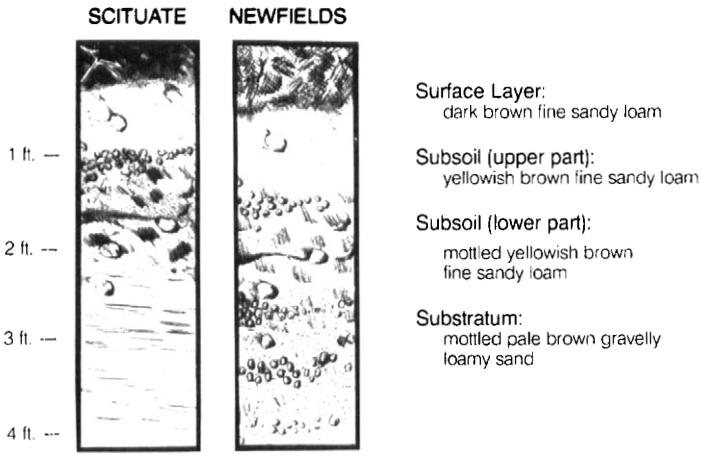
These soils are poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. The soils are wet during the early part of the growing season. Working the soils during wet periods results in the formation of ruts, compaction, and clodding. Farm machinery should not be used when the soils are wet.

These soils are well suited to woodland. The most common trees are red maple, eastern white pine, red pine, sugar maple, and northern red oak. Areas of these soils are good sites for the production of sawlogs and fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by some form of partial cutting, in which only a portion of the trees are removed. Shelterwood cutting, in which half of the trees are removed, is not recommended because strong winds may uproot the remaining trees. A better alternative is improvement cutting, in which only a third of the trees are harvested and thus the hazard of windthrow is reduced. The soils are wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soils are drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

These soils are suited to urban development, but the wetness and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Care is needed in excavating the soils because steep cutbanks may cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

447B—Scituate-Newfields complex, 3 to 8 percent slopes, very stony. These gently sloping soils occur as areas so intermingled that mapping them separately was not practical. They are on the lower side slopes of hills and on low knolls. Areas are irregularly shaped and are 5 to 150 acres in size. They are about 50 percent Scituate soil, 25 percent Newfields soil, and 25 percent other soils. Stones cover 0.01 to 3 percent of the surface.

Generalized profiles of these soils are as follows:



Inclusions make up about 25 percent of the map unit. Among these are Walpole and Ridgebury soils in drainageways and Canton and Montauk soils on knolls and the higher side slopes. Also included in some areas are soils that are less than 60 inches deep over bedrock.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: Scituate—1.5 to 3.0 feet; Newfields—2.0 to 4.0 feet
Depth to bedrock: more than 60 inches
Permeability: Scituate—moderate in the upper part of the profile and slow in the lower part; Newfields—moderate
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of these soils are used as woodland. Some areas are used for urban development.

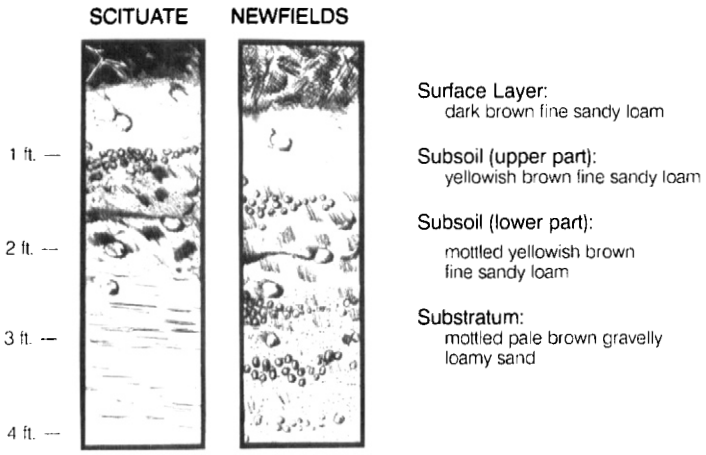
These soils are poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. The soils are wet during the early part of the growing season. Working the soils during wet periods results in the formation of ruts, compaction, and clodding. Farm machinery should not be used when the soils are wet.

These soils are well suited to woodland. The most common trees are red maple, eastern white pine, red pine, sugar maple, and northern red oak. Areas of these soils are good sites for the production of sawlogs and fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by some form of partial cutting, in which only a portion of the trees are removed. Shelterwood cutting, in which half of the trees are removed, is not recommended because strong winds may uproot the remaining trees. A better alternative is improvement cutting, in which only a third of the trees are harvested and thus the hazard of windthrow is reduced. The soils are wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soils are drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

These soils are suited to urban development, but the wetness and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover. Care is needed in excavating the soils because steep cutbanks may cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

447C—Scituate-Newfields complex, 8 to 15 percent slopes, very stony. These strongly sloping soils occur as areas so intermingled that mapping them separately was not practical. They are on the lower side slopes of hills and on low knolls. Areas are irregularly shaped and are 5 to 100 acres in size. They are about 50 percent Scituate soil, 25 percent Newfields soil, and 25 percent other soils. Stones cover 0.01 to 3 percent of the surface.

Generalized profiles of these soils are as follows:



Inclusions make up about 25 percent of the map unit. Among these are Walpole and Ridgebury soils in drainageways and Canton and Montauk soils on knolls and the higher side slopes. Also included in some areas are soils that are less than 60 inches deep over bedrock.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: Scituate—1.5 to 3.0 feet; Newfields—2.0 to 4.0 feet
Depth to bedrock: more than 60 inches
Permeability: Scituate—moderate in the upper part of the profile and slow in the lower part; Newfields—moderate
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of these soils are used as woodland.

These soils are poorly suited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. The soils are wet during the early part of the growing season. Working the soils during wet periods results in the formation of ruts, compaction, and clodding. Farm machinery should not be used when the soils are wet. Because of the slope, care is needed in operating some types of farm machinery.

These soils are well suited to woodland. The most common trees are red maple, eastern white pine, red pine, sugar maple, and northern red oak. Areas of these soils are good sites for the production of sawlogs and fuelwood from softwoods or hardwoods. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by some form of partial cutting, in which only a portion of the trees are removed. Shelterwood cutting, in which half of the trees are removed, is not recommended because strong winds may uproot the remaining trees. A better alternative is improvement cutting, in which only a third of the trees are harvested and thus the hazard of windthrow is reduced. The soils are wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soils are drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

These soils are suited to urban development, but the wetness, the slope, and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Because of the slope, cutting and filling are common on construction sites and fill is needed on sites for septic tank absorption fields. Erosion occurs during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. The design of subdivisions should include adequate management of storm water through properly designed ditches, culverts, riprap, and catch basins, which help to control erosion once the development is completed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Care is needed in excavating the soils because steep cutbanks may cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Surface stones can hinder landscaping. Once the stones are removed, lawns can be easily established.

460B—Pennichuck channery very fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is on low hills. Areas are irregularly shaped and are 10 to 150 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown channery very fine sandy loam

Subsoil:
yellowish brown very channery fine sandy loam

Substratum:
dark yellowish brown very channery loamy coarse sand

Inclusions make up about 25 percent of the map unit. Among these are soils that are more than 40 inches deep over bedrock. Also included are some areas of Eldridge, Squamscott, and Scitico soils in basins between hills and in drainageways.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: 20 to 40 inches
Permeability: moderate
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used for cultivated crops or forage. Some areas are used as woodland, and some are used for urban development. In most areas the soil is classified as prime farmland.

This soil is well suited to cultivated crops and forage species. Because of the slope, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures. Numerous flat rocks in the topsoil and subsoil affect the production of vegetables and other crops that may require hand cultivation. The rocks do not limit mechanical cultivation, but replacement of the plow points may be needed more often in this soil than in soils containing fewer rocks.

This soil is well suited to woodland. The most common trees are eastern white pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry.

This soil is suited to urban development. Because of the depth to bedrock, careful selection of sites for septic systems and buildings is important. Where bedrock is encountered and areas of deeper soils are not available for use as building sites, blasting may be necessary before basements are constructed and fill may be needed to raise septic systems above the bedrock. Blasting also be necessary during the construction of roads. Runoff is more rapid and more concentrated on this soil than on deeper soils and results in erosion in disturbed areas. During earth-moving operations, common erosion- and sediment-control measures are hay-bale sediment traps and a plant cover. The increased runoff rate should be considered when storm water management is planned. If necessary, the plans should include control of waterflow by catch basins, ditches, culverts, riprap, and a good plant cover. Rock fragments in the surface layer can hinder landscaping. Once the fragments are removed, lawns can be easily established.

460C—Pennichuck channery very fine sandy loam, 8 to 15 percent slopes. This strongly sloping soil is on low hills. Areas are irregularly shaped and are 10 to 150 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
dark brown channery very fine sandy loam

Subsoil:
yellowish brown very channery fine sandy loam

Substratum:
dark yellowish brown very channery loamy coarse sand

Inclusions make up about 25 percent of the map unit. Among these are soils that are more than 40 inches deep over bedrock and areas of rock outcrop. Also included are some areas of Eldridge, Squamscott, and Scitico soils in basins between hills and in drainageways.

Soil features affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: 20 to 40 inches
Permeability: moderate
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used for cultivated crops or forage. Some areas are used as woodland, and some are used for urban development. In most areas the soil is classified as additional farmland of statewide importance.

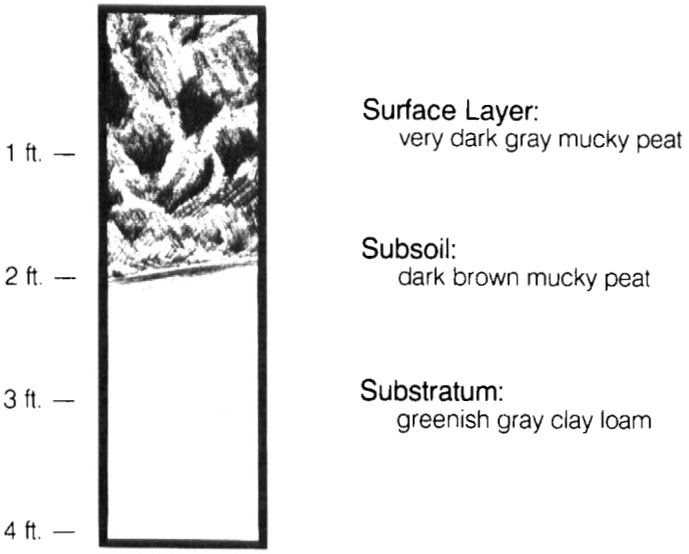
This soil is suited to cultivated crops and forage species. Erosion and the slope are management concerns. In areas used for corn silage, erosion can be controlled by a system of conservation tillage, such as no-till farming, or by contour stripcropping in combination with short rotations. In areas where row crops, such as vegetables, are grown year after year, the slope length generally should be reduced by some structure, such as a terrace or a diversion, if erosion is to be controlled. Because of the slope, care is needed in operating some types of farm machinery. Numerous flat rocks in the topsoil and subsoil affect the production of vegetables and other crops that may require hand cultivation. The rocks do not limit mechanical cultivation, but replacement of the plow points may be needed more often in this soil than in soils containing fewer rocks.

This soil is well suited to woodland. The most common trees are eastern white pine, sugar maple, and northern red oak. Areas of this soil are good sites for the production of sawlogs and lower grade pallet logs from softwoods or hardwoods. Fuelwood can be a by-product of harvesting. Clear-cutting can result in the invasion of lower quality trees. The quality of the trees on the lot can be maintained by partial cutting. For a short period in early spring, the soil is wet and intermittent streams are flowing at full capacity. Harvesting during this period causes the formation of ruts and the siltation of streams. Also, machines are likely to become bogged down during this period. A better alternative is logging in winter, when the ground and streams are frozen, or in summer and fall, when the soil is drier and the beds of intermittent streams are dry. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development. Because of the depth to bedrock, careful selection of sites for septic systems and buildings is important. Where bedrock is encountered and areas of deeper soils are not available for use as building sites, blasting may be necessary before basements are constructed and fill may be needed to raise septic systems above the bedrock. Blasting also may be necessary during the construction of roads. Because of the slope, cutting and filling are common on construction sites and fill is needed on sites for septic tank absorption fields. Runoff is more rapid and more concentrated on this soil than on deeper soils and results in erosion in disturbed areas. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. The increased runoff rate should be considered when storm water management is planned. If necessary, the plans should include control of waterflow by catch basins, ditches, culverts, riprap, and a good plant cover. Rock fragments in the surface layer can hinder landscaping. Once the fragments are removed, lawns can be easily established.

495—Ossipee mucky peat. This nearly level soil is in valleys, basins, and drainageways. Areas are irregularly shaped and are 4 to 80 acres in size.

A generalized profile of this soil is as follows:



Inclusions make up about 10 percent of the map unit. Among these are Scarboro and Walpole soils near the margins of the mapped areas and Maybid soils near the margins of the mapped areas in the seacoast region.

Soil features affecting use—

Drainage class: very poorly drained
Seasonal high water table: 1.0 foot above to 0.5 foot below the surface
Depth to bedrock: more than 60 inches
Permeability: moderate or moderately slow
Available water capacity: high
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most of the acreage of this soil is idle land, but some areas are used as woodland. In most places the soil is classified as wetland.

This soil is unsuited to cultivated crops and forage species. Because of the wetness, ponding, low strength, and frost action, farming is impractical. The soil is wet throughout the growing season, and drainage outlets generally are not available.

This soil is generally unsuited to woodland. It is wet throughout the year. As a result, managing woodland and harvesting trees are difficult. Logging equipment gets bogged down in the soil and leaves it deeply rutted. Tree growth is slow, and the stand is of poor quality.

This soil is very poorly suited to urban development because of the wetness.

497—Pawcatuck mucky peat. This nearly level soil is in tidal marshes. Areas are long and narrow or irregularly shaped and are 4 to 50 acres in size. The content of salts in the soil is more than 1 percent.

A generalized profile of this soil is as follows:

1 ft. —

2 ft. —

3 ft. —

4 ft. —

Surface Layer:
dark olive gray mucky peat

Subsoil:
very dark gray mucky peat

Substratum:
dark gray sand

Inclusions make up about 10 percent of the map unit. Among these are Ipswich and Westbrook soils in scattered areas throughout the map unit.

Soil features affecting use—

Drainage class: very poorly drained
Seasonal high water table: at the surface or as much as 1 foot above the surface
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and very rapid in the lower part
Available water capacity: high
Flooding: frequent
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used as wildlife habitat. In most places the soil is classified as wetland.

This soil is generally unsuited to woodland. Because of the frequent flooding and high salinity, trees cannot grow in the tidal marshes.

This soil is unsuited to cultivated crops and forage species. Because of the periodic flooding by tidal seawater, the wetness, low strength, and the content of salts, farming is impractical. The only suitable plants are those that can withstand a high content of salts.

This soil is very poorly suited to urban development because of the tidal flooding.

510A—Hoosic gravelly fine sandy loam, 0 to 3 percent slopes. This nearly level soil is on broad plains and the tops of broad, low hills, generally at an elevation of 60 to 160 feet. Areas are irregularly shaped and are 4 to 180 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
brown gravelly fine sandy loam

Subsoil:
yellowish brown very gravelly fine sandy loam

Substratum:
brown very gravelly coarse sand

Inclusions make up about 10 percent of the map unit. Among these are moderately well drained soils in hollows and soils that are underlain by hard bedrock or have a dense hardpan in the substratum.

Soil features affecting use—

Drainage class: somewhat excessively drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid in the upper part of the profile and very rapid in the lower part
Available water capacity: low
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used for cultivated crops or forage. Some areas are used for urban development, and some are used as woodland. In most areas the soil is classified as additional farmland of statewide importance. It is a source of sand and gravel.

This soil is suited to cultivated crops and forage species, but it is droughty during dry summers. Adding organic material, such as manure or crop residue, can increase the available water capacity. Certain crops, such as vegetables, may require irrigation during the dry summers to maintain yields. Because of the droughtiness, the soil is most productive as pasture in early spring.

This soil is well suited to woodland. The most common trees are eastern white pine, sugar maple, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Management that favors the regeneration of white pine includes cuttings in which only a portion of the trees are harvested. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as pruning. Because the soil is droughty, the trees can be harvested any time of the year, even in spring.

This soil is well suited to urban development. Because of the sandy texture, however, it is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too fast to be adequately purified before reaching the water table. Care is needed in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Lawns may require irrigation during dry summers, when the soil is droughty. Incorporating organic material, such as plant residue or manure, into the soil can increase the available water capacity. Mulching and frequent watering may be required in disturbed areas.

510B—Hoosic gravelly fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is on low hills, knolls, and ridges, generally at an elevation of 60 to 160 feet. Areas are oval or irregularly shaped and are 5 to 100 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
brown gravelly fine sandy loam

Subsoil:
yellowish brown very gravelly fine sandy loam

Substratum:
brown very gravelly coarse sand

Inclusions make up about 10 percent of the map unit. Among these are moderately well drained soils in hollows and soils that are underlain by hard bedrock or have a dense hardpan in the substratum.

Soil features affecting use—

Drainage class: somewhat excessively drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid in the upper part of the profile and very rapid in the lower part
Available water capacity: low
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used for cultivated crops or forage. Some areas are used for urban development, and some are used as woodland. In most areas the soil is classified as additional farmland of statewide importance. It is a source of sand and gravel.

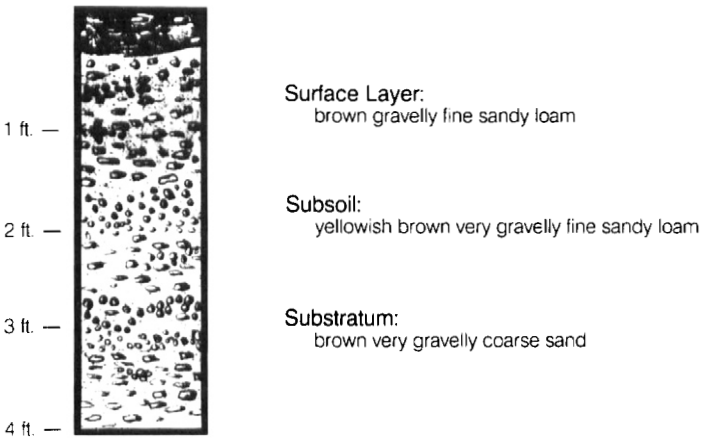
This soil is suited to cultivated crops and forage species, but it is droughty during dry summers. Adding organic material, such as manure or crop residue, can increase the available water capacity. Certain crops, such as vegetables, may require irrigation during the dry summers to maintain yields. Because of the summer droughtiness, the soil is most productive as pasture in early spring. Because of the slope, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures.

This soil is well suited to woodland. The most common trees are eastern white pine, sugar maple, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Management that favors the regeneration of white pine includes cuttings in which only a portion of the trees are harvested. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as pruning. Because the soil is droughty, the trees can be harvested any time of the year, even in spring.

This soil is well suited to urban development. Because of the sandy texture, however, it is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too fast to be adequately purified before reaching the water table. Care is needed in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Lawns may require irrigation during dry summers, when the soil is droughty. Incorporating organic material, such as plant residue or manure, into the soil can increase the available water capacity. Mulching and frequent watering may be required in disturbed areas. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover.

510C—Hoosic gravelly fine sandy loam, 8 to 15 percent slopes. This strongly sloping soil is on hillsides, generally at an elevation of 60 to 160 feet. Areas are oval or irregularly shaped and are 5 to 75 acres in size.

A generalized profile of this soil is as follows:



Inclusions make up about 5 percent of the map unit. Among these are soils that have slopes of less than 8 percent or more than 15 percent and soils that are underlain by hard bedrock or have a dense hardpan in the substratum.

Soil features affecting use—

Drainage class: somewhat excessively drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid in the upper part of the profile and very rapid in the lower part
Available water capacity: low
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for cultivated crops or forage, and some are used for urban development. In most areas the soil is classified as additional farmland of statewide importance. It is a source of sand and gravel.

This soil is suited to cultivated crops and forage species, but erosion and the slope are management concerns. In areas used for corn silage, erosion can be controlled by a system of conservation tillage, such as no-till farming, or by contour stripcropping in combination with short rotations. In areas where row crops, such as vegetables, are grown year after year, the slope length generally should be reduced by some structure, such as a terrace or a diversion, if erosion is to be controlled. Because of the slope, care is needed in operating some types of farm machinery. The soil is droughty during dry summers. Adding organic material, such as manure or crop residue, can increase the available water capacity. Certain crops, such as vegetables, may require irrigation during dry summers to maintain yields. Because of the summer droughtiness, the soil is most productive as pasture in early spring.

This soil is well suited to woodland. The most common trees are eastern white pine, sugar maple, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Management that favors the regeneration of white pine includes cuttings in which only a portion of the trees are harvested. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as pruning. Because the soil is droughty, the trees can be harvested any time of the year, even in spring. Because of the slope, the main access roads may be subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as water bars, stone fords, culverts, ditches, and a permanent plant cover.

This soil is suited to urban development. Because of the sandy texture, however, it is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too fast to be adequately purified before reaching the water table. Because of the slope, cutting and filling are needed to level sites for septic tank absorption fields. Care is needed in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading side slopes can keep the banks from collapsing. Lawns may require irrigation during dry summers, when the soil is droughty. Incorporating organic material, such as plant residue or manure, into the soil can increase the available water capacity. Mulching and frequent watering may be required in disturbed areas. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover.

510D—Hoosic gravelly fine sandy loam, 15 to 35 percent slopes. This moderately steep and steep soil is on the sides of hills and on terrace escarpments, generally at an elevation of 60 to 160 feet. Areas are long and narrow or irregularly shaped and are 4 to 40 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
brown gravelly fine sandy loam

Subsoil:
yellowish brown very gravelly fine sandy loam

Substratum:
brown very gravelly coarse sand

Inclusions make up about 10 percent of the map unit. Among these are Hinckley and Windsor soils in scattered areas throughout the map unit.

Soil features affecting use—

Drainage class: somewhat excessively drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid in the upper part of the profile and very rapid in the lower part
Available water capacity: low
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

Most areas of this soil are used as woodland. The soil is a source of sand and gravel.

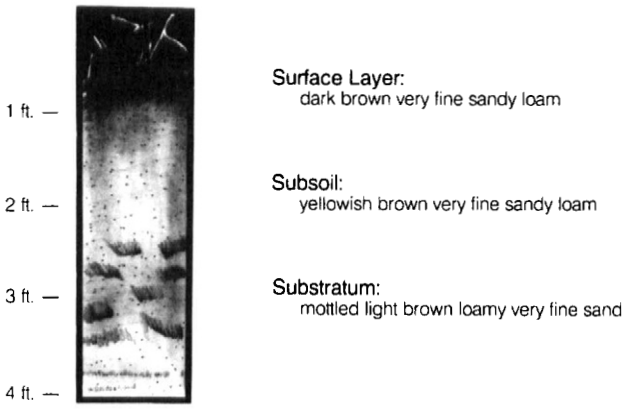
This soil is poorly suited to cultivated crops and forage species. Because of the slope, erosion is a hazard. In areas used for corn silage, no-till farming is the only method of conservation tillage that adequately protects the soil. In areas where row crops, such as vegetables, are grown year after year, controlling erosion is not practical. A permanent plant cover, such as that in areas of pasture or hayland, is the most effective way of controlling erosion. Because of the slope, operating most types of farm machinery is difficult or impractical and can be hazardous. The soil is droughty during dry summers. Adding organic material, such as manure or crop residue, can increase the available water capacity. Because of the summer droughtiness, the soil is most productive as pasture in early spring.

This soil is well suited to woodland. The most common trees are eastern white pine, sugar maple, and northern red oak. Areas of this soil are good sites for white pine and produce high-quality pine sawlogs, but care must be taken to keep hardwoods from invading. For example, after an area has been clearcut, gray birch, white oak, and other hardwoods will reseed rather than white pine. Partial cutting, in which only a portion of the trees are harvested, favors the regeneration of white pine. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. Stands of white pine respond well to intensive stand improvement measures, such as pruning. Because the soil is droughty, the trees can be harvested any time of the year, even in spring. Because of the slope, the main access roads are subject to erosion. Waterflow can be controlled and the hazard of erosion reduced by a variety of conservation measures, such as benching of logging roads into the hillside, water bars, stone fords, culverts, roadside ditches, and a permanent plant cover.

This soil is poorly suited to urban development. Because of the sandy texture, it is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too fast to be adequately purified before reaching the water table. Because of the slope, extensive cutting and filling commonly are needed. Care is needed during cutting and filling to keep machinery from turning over. Fill can be used to level sites for septic tank absorption fields, but some areas are too steep for leveling. Care is needed in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Lawns may require irrigation during dry summers, when the soil is droughty. Incorporating organic material, such as plant residue or manure, into the soil can increase the available water capacity. Mulching and frequent watering may be required in disturbed areas. Erosion is a hazard during earth-moving operations. Because of the slope, erosion cannot be adequately controlled. Common erosion- and sediment-control measures are sediment traps, diversions, debris basins, sediment screens, and a good plant cover. Constructing streets on the contour can reduce road grades and the runoff rate.

531B—Scio very fine sandy loam, 0 to 5 percent slopes. This nearly level and gently sloping soil is on low rises on broad plains and at the base of hills. Areas are long and narrow or irregularly shaped and are 4 to 50 acres in size.

A generalized profile of this soil is as follows:



Inclusions make up about 15 percent of the map unit. Among these are Raynham soils in drainageways and Unadilla soils on knolls. Also included, in the seacoast region, are areas of Scitico soils in drainageways and scattered areas of Boxford soils.

Soil features affecting use—

Drainage class: moderately well drained
Depth to a seasonal high water table: 1.5 to 2.0 feet
Depth to bedrock: more than 60 inches
Permeability: moderate or moderately rapid
Available water capacity: high
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used as woodland. In most areas the soil is classified as additional farmland of statewide importance.

This soil is well suited to cultivated crops and forage species. Because of the slope, however, erosion is a hazard. In areas used for corn silage, this hazard can be reduced by no-till farming and other forms of conservation tillage or by short rotations, such as 2 years of corn and 5 years of hay. In areas where row crops, such as vegetables, are grown year after year, diversions and terraces may be needed as erosion-control measures. The soil is wet and thaws slowly during the early part of the growing season. The wetness and low soil temperature hamper early planting of the crops that require a long growing season. Because of the restricted permeability, the soil is wet after a heavy rain. Working the soil during wet periods results in the formation of ruts, compaction, and clodding. Although a subsurface drainage system may not be effective, land shaping and grading can reduce the wetness. Early planting should be avoided. Grazing of undrained pasture should be delayed until the soil dries out. Farm machinery should not be used when the soil is wet. Frost action is a limitation. Perennial plants that can withstand wetness and frost action should be selected for planting. For example, alfalfa does not grow well on this soil because the frost heaving damages the roots. A better choice of perennial forage would be a grass-legume mixture that includes clover.

This soil is well suited to woodland. The most common trees are eastern white pine, eastern hemlock, and northern red oak. Preventing the invasion of hardwoods or hemlock is difficult. For example, after an area has been clearcut, red maple, aspen, or hemlock will reseed rather than white pine. Partial cutting can favor white pine. Shelterwood cutting, in which half of the trees are removed, is not recommended because strong winds may uproot the remaining trees. A better alternative is improvement cutting, in which only a third of the trees are harvested and thus the hazard of windthrow is reduced. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down. Midsummer harvesting can result in little rutting if the summer has been dry. Because of restricted permeability, however, a single heavy rainstorm can wet the site enough for machine traffic to cause the formation of deep ruts.

This soil is suited to urban development, but the wetness in spring and frost action are limitations. Fill is generally used to raise septic systems above the seasonal high water table. Footing drains around the foundations can reduce the wetness, though sump pumps may still be needed. Land shaping, ditching, and installing culverts around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Because of the potential for frost action, foundations should have adequate footings. Properly designing road subgrades can reduce the hazard of frost heaving. Because of the slope, erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover. Erosion is a factor in the management of storm water. Riprap, catch basins, a good plant cover, and diversions can control the runoff of storm water. Care is needed in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing.

533—Raynham silt loam. This nearly level soil is in drainageways between hills and in hollows and basins on broad plains. Areas are irregularly shaped and are 4 to 40 acres in size.

A generalized profile of this soil is as follows:

Inclusions make up about 15 percent of the map unit. Among these are areas of Scio soils on scattered low rises throughout the map unit, areas of soils that have an organic surface layer, and areas of Walpole soils.

Soil features affecting use—

Drainage class: somewhat poorly drained or poorly drained
Depth to a seasonal high water table: 0.5 foot to 2.0 feet
Depth to bedrock: more than 60 inches
Permeability: moderately slow or slow
Available water capacity: high
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used as woodland. In places the soil is classified as wetland.

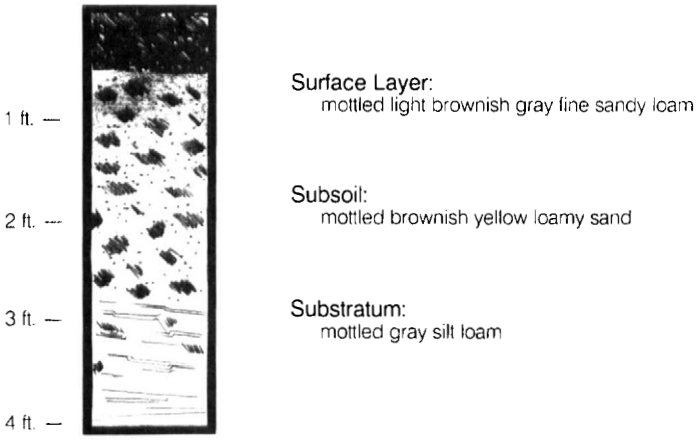
This soil is suited to cultivated crops and forage species. It is wet and thaws slowly in spring. The wetness and low soil temperature hamper early planting of the crops that require a long growing season. Because of the restricted permeability, the soil is wet after a heavy rain. Working the soil during wet periods results in the formation of ruts, compaction, and clodding. Although subsurface drainage is generally not effective, bedding systems and land shaping and grading can reduce the wetness. Early planting should be avoided. Grazing of undrained pasture should be delayed until the soil dries out. Farm machinery should not be used when the soil is wet. Frost action is a limitation. Perennial plants that can withstand wetness and frost action should be selected for planting. For example, alfalfa does not grow well on this soil because frost heaving damages the roots. A better choice of perennial forage would be a grass-legume mixture that includes clover.

This soil is suited to woodland. The most common trees are red maple, eastern white pine, and elm. The trees are of low quality, though the stands may be densely stocked and yields may be high. The site conditions favor the production of fuelwood. Various species of wildlife are attracted to areas of this soil. In areas managed for fuelwood, scattered ribbon-shaped or kidney-shaped clearcuts should be established throughout the lot. The clearcuts should be no more than 200 feet across. The small clearcuts can reduce the hazard of windthrow and provide a varied habitat for wildlife. Harvesting methods that leave a diversity of trees, such as snag trees, trees with cavities, and a variety of size classes, improve the habitat for wildlife. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down. Midsummer harvesting can result in little rutting if the summer has been dry. Because of the restricted permeability, however, a single heavy rainstorm can wet the site enough for machine traffic to cause the formation of deep ruts.

This soil is poorly suited to urban development because of the wetness, ponding, frost action, and the restricted permeability. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, but outlets for the drains are not readily available in some areas. Sump pumps may still be needed. Storm water management is critical because of the restricted permeability. Land shaping, ditching, and installing culverts around the development can help to remove surface water, but ponding may still occur after heavy rains. Because of the potential for frost action, foundations should have adequate footings. Properly designing road subgrades can reduce the hazard of frost heaving.

538A—Squamscott fine sandy loam, 0 to 5 percent slopes. This nearly level and gently sloping soil is in drainageways and on broad, low plains. Areas are irregularly shaped and are 4 to 150 acres in size. Scattered hummocks that are about 1 foot high are throughout the map unit.

A generalized profile of this soil is as follows:



In places depth to the loamy substratum is more than 40 inches.

Inclusions make up about 15 percent of the map unit. Among these are Scitico and Maybid soils in hollows and drainageways and Eldridge soils on low rises and knolls.

Soil features affecting use—

Drainage class: poorly drained
Depth to a seasonal high water table: 0 to 1 foot
Depth to bedrock: more than 60 inches
Permeability: rapid in the upper part of the profile and moderately slow in the lower part
Available water capacity: high
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for cultivated crops or forage. In places the soil is classified as wetland.

This soil is suited to cultivated crops and forage species, but it is wet in spring. The wetness hampers early planting of the crops that require a long growing season. Working the soil during wet periods results in the formation of ruts and compaction. Although a subsurface drainage system may not be effective, land grading can reduce the wetness. Early planting should be avoided. Grazing of undrained pasture should be delayed until the soil dries out. Farm machinery should not be used when the soil is wet.

This soil is suited to woodland. The most common trees are red maple and eastern white pine. Areas of this soil can be good sites for white pine and produce high-quality pine sawlogs, but hardwoods may dominate the site or may be introduced through management practices. For example, after an area has been clearcut, red maple, aspen, or elm will reseed rather than white pine. An alternative that would favor the regeneration of white pine is improvement cutting, in which approximately a third of the trees are harvested. Shelterwood cutting, in which half of the trees are removed, is not recommended because of the hazard of windthrow. Scarifying the surface after the trees are harvested can help the pine seeds to sprout. If hardwoods dominate the site, the area can be managed for fuelwood. Small, ribbon-shaped or kidney-shaped clearcuts in scattered areas throughout the lot can reduce the hazard of windthrow and provide a varied habitat for wildlife. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

This soil is poorly suited to urban development because of the wetness, ponding, frost action, and the restricted permeability. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness, but outlets for the drains may not be available. Sump pumps may still be needed. Storm water management is critical because of the restricted permeability. Land shaping, ditching, and installing culverts around the development can help to remove surface water, but ponding may still occur after heavy rains. Because of the potential for frost action, foundations should have adequate footings. Properly designing road subgrades can reduce the hazard of frost heaving.

546A—Walpole very fine sandy loam, 0 to 5 percent slopes. This nearly level and gently sloping soil is in drainageways. Areas are long and narrow or irregularly shaped and are 4 to 30 acres in size.

A generalized profile of this soil is as follows:

Surface Layer:
very dark grayish brown very fine sandy loam

Subsoil:
mottled light yellowish brown sandy loam

Substratum:
mottled light olive brown gravelly loamy sand

Inclusions make up about 15 percent of the map unit. Among these are Scarboro soils in scattered areas throughout the map unit and Newfields soils on low rises and near the margins of the map unit.

Soil features affecting use—

Drainage class: poorly drained
Depth to a seasonal high water table: 0 to 1 foot
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for cultivated crops or forage. In places the soil is classified as wetland.

This soil is suited to cultivated crops and forage species, but it is wet in spring. The wetness hampers early planting of the crops that require a long growing season. Working the soil during wet periods results in the formation of ruts, compaction, and the siltation of nearby streams. If the wetness in areas of cropland is reduced by a subsurface drainage system, the crops can be planted on schedule. Land grading also can reduce the wetness. Grazing of undrained pasture should be delayed until the soil dries out. Farm machinery should not be used when the soil is wet. Frost action is a limitation. Perennial plants that can withstand wetness and frost action should be selected for planting. For example, alfalfa does not grow well on this soil because frost heaving damages the roots. A better choice of perennial forage would be a grass-legume mixture that includes clover.

This soil is suited to woodland. The most common trees are red maple, eastern white pine, white ash, and eastern hemlock. The trees are of low quality, though the stands may be densely stocked and yields may be high. The site conditions favor the production of fuelwood. Various species of wildlife are attracted to areas of this soil. In areas managed for fuelwood, scattered ribbon-shaped or kidney-shaped clearcuts should be established throughout the lot. The clearcuts should be no more than 200 feet across. The small clearcuts can reduce the hazard of windthrow and provide a varied habitat for wildlife. Harvesting methods that leave a diversity of trees, such as snag trees, trees with cavities, and a variety of size classes, improve the habitat for wildlife. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

This soil is poorly suited to urban development. The wetness, a poor filtering capacity, and frost action are limitations. Land shaping and grading can reduce the wetness. Footing drains can help to keep cellars dry if drainage outlets are available. If outlets are not available, sump pumps may be needed. Fill is generally used to raise septic systems above the seasonal high water table. Because of the sandy texture, the soil is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too rapidly to be adequately purified before reaching the water table. Care is needed in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings.

547A—Walpole very fine sandy loam, 0 to 3 percent slopes, very stony. This nearly level soil is in drainageways. Areas are long and narrow or irregularly shaped and are 4 to 60 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Surface Layer:
very dark grayish brown very fine sandy loam

Subsoil:
mottled light yellowish brown sandy loam

Substratum:
mottled light olive brown gravelly loamy sand

Inclusions make up about 15 percent of the map unit. Among these are Scarboro soils in scattered areas throughout the map unit and Newfields soils on low rises and near the margins of the map unit.

Soil features affecting use—

Drainage class: poorly drained
Depth to a seasonal high water table: 0 to 1 foot
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland. In some areas the soil is classified as wetland.

This soil is generally unsuited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. The soil is wet in spring and fall. Working the soil during wet periods results in the formation of ruts and the siltation of nearby streams.

This soil is suited to woodland. The most common trees are red maple, eastern white pine, white ash, and eastern hemlock. The trees are of low quality, though the stands may be densely stocked and yields may be high. The site conditions favor the production of fuelwood. Various species of wildlife are attracted to areas of this soil. In areas managed for fuelwood, scattered ribbon-shaped or kidney-shaped clearcuts should be established throughout the lot. The clearcuts should be no more than 200 feet across. The small clearcuts can reduce the hazard of windthrow and provide a varied habitat for wildlife. Harvesting methods that leave a diversity of trees, such as snag trees, trees with cavities, and a variety of size classes, improve the habitat for wildlife. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

This soil is poorly suited to urban development. The wetness, a poor filtering capacity, and frost action are limitations. Land shaping and grading can reduce the wetness. Footing drains can help to keep cellars dry if drainage outlets are available. If outlets are not available, sump pumps may be needed. Fill is generally used to raise septic systems above the seasonal high water table. Because of the sandy texture, the soil is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too rapidly to be adequately purified before reaching the water table. Care is needed in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Surface stones can hinder landscaping. Even if the stones are removed, establishing lawns may be difficult because of the wetness.

547B—Walpole very fine sandy loam, 3 to 8 percent slopes, very stony. This gently sloping soil is in drainageways. Areas are long and narrow or irregularly shaped and are 4 to 40 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:

Surface Layer:
very dark grayish brown very fine sandy loam

Subsoil:
mottled light yellowish brown sandy loam

Substratum:
mottled light olive brown gravelly loamy sand

Inclusions make up about 20 percent of the map unit. Among these are Scarboro soils in scattered areas throughout the map unit; Newfields soils on low rises and near the margins of the map unit; and, in the seacoast region, Squamscott soils in scattered areas throughout the map unit.

Soil features affecting use—

Drainage class: poorly drained
Depth to a seasonal high water table: 0 to 1 foot
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: moderate
Flooding: none
Potential for frost action: moderate
Shrink-swell potential: low

Most areas of this soil are used as woodland. In places the soil is classified as wetland.

This soil is generally unsuited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. The soil is wet in spring and fall. Working the soil during wet periods results in the formation of ruts and the siltation of nearby streams.

This soil is suited to woodland. The most common trees are red maple, eastern white pine, white ash, and eastern hemlock. The trees are of low quality, though the stands may be densely stocked and yields may be high. The site conditions favor the production of fuelwood. Various species of wildlife are attracted to areas of this soil. In areas managed for fuelwood, scattered ribbon-shaped or kidney-shaped clearcuts should be established throughout the lot. The clearcuts should be no more than 200 feet across. The small clearcuts can reduce the hazard of windthrow and provide a varied habitat for wildlife. Harvesting methods that leave a diversity of trees, such as snag trees, trees with cavities, and a variety of size classes, improve the habitat for wildlife. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

This soil is poorly suited to urban development. The wetness, a poor filtering capacity, and frost action are limitations. Land shaping and grading can reduce the wetness. Footing drains can help to keep cellars dry if drainage outlets are available. If outlets are not available, sump pumps may be needed. Fill is generally used to raise septic systems above the seasonal high water table. Because of the sandy texture, the soil is poor filtering material for the leachate from septic systems. The effluent may pass through the soil too rapidly to be adequately purified before reaching the water table. Care is needed in excavating the soil because steep cutbanks commonly cave in. Adding retaining walls or grading long side slopes can keep the banks from collapsing. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are sediment traps and a good plant cover. Surface stones can hinder landscaping. Even if the stones are removed, establishing lawns may be difficult because of the wetness.

597—Westbrook mucky peat. This nearly level soil is in tidal marshes. Areas are irregularly shaped and are 4 to 20 acres in size. The content of salts in the soil is more than 1 percent.

A generalized profile of this soil is as follows:

Surface Layer:
very dark grayish brown mucky peat

Subsoil:
dark reddish brown mucky peat

Substratum:
very dark gray silty clay loam

Inclusions make up about 10 percent of the map unit. Among these are Ipswich and Pawcatuck soils in scattered areas throughout the map unit.

Soil features affecting use—

Drainage class: very poorly drained
Seasonal high water table: at the surface or as much as 1 foot above the surface
Depth to bedrock: more than 60 inches
Permeability: moderate or moderately slow
Available water capacity: high
Flooding: frequent
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used as wildlife habitat. In most places the soil is classified as wetland.

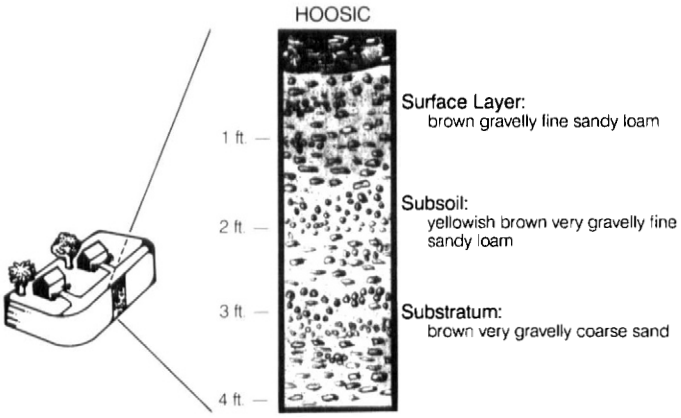
This soil is generally unsuited to woodland. Because of the frequent flooding and high salinity, trees cannot grow in the tidal marshes.

This soil is unsuited to cultivated crops and forage species. Because of the periodic flooding by tidal seawater, the wetness, low strength, and the content of salts, farming is impractical. The only suitable plants are those that can withstand a high content of salts.

This soil is very poorly suited to urban development because of the tidal flooding.

599—Urban land-Hoosic complex, 3 to 15 percent slopes. This map unit consists of Urban land and a gently sloping and strongly sloping Hoosic soil. The Urban land and Hoosic soil occur as areas so intermingled that mapping them separately was not practical. The map unit is on broad plains and low hills that are partially covered by streets, parking lots, and buildings. Areas are rectangular or irregularly shaped and are 4 to 250 acres in size. They are about 55 percent Urban land, 25 percent Hoosic soil, and 20 percent other soils.

A generalized profile of the Hoosic soil is as follows:



Inclusions make up about 20 percent of the map unit. Among these are Udorthents in scattered areas throughout the map unit, Newfields and Eldridge soils in hollows, and Squamscott and Scitico soils in drainageways.

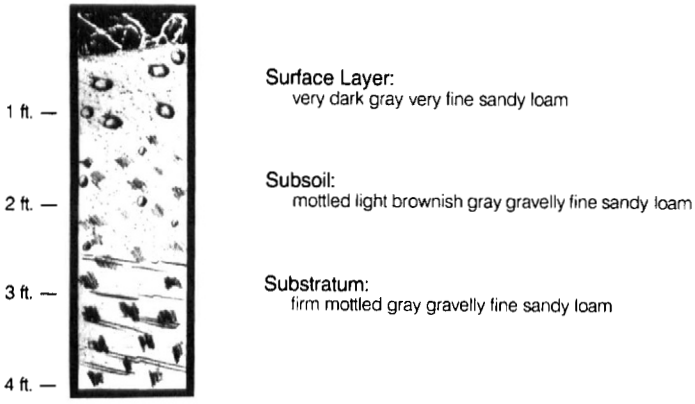
Features of the Hoosic soil affecting use—

Drainage class: somewhat excessively drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid in the upper part of the profile and very rapid in the lower part
Available water capacity: low
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

This map unit is used for urban development. It is generally unsuited to cultivated crops, forage species, and woodland because of the urban development. Areas of the map unit have been so altered by construction that onsite investigation is necessary to identify the limitations affecting any intended use.

656A—Ridgebury very fine sandy loam, 0 to 5 percent slopes. This nearly level and gently sloping soil is in drainageways. Areas are long and narrow or irregularly shaped and are 4 to 25 acres in size.

A generalized profile of this soil is as follows:



In places the surface layer is thicker and has more organic matter.

Inclusions make up about 20 percent of the map unit. Among these are Walpole soils in scattered areas throughout the map unit, Scarboro soils in drainageways and hollows, and Woodbridge soils on low rises and near the margins of the map unit.

Soil features affecting use—

Drainage class: somewhat poorly drained or poorly drained
Depth to a seasonal high water table: 0 to 1.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used as woodland. Some areas are used for cultivated crops or forage. In places the soil is classified as wetland.

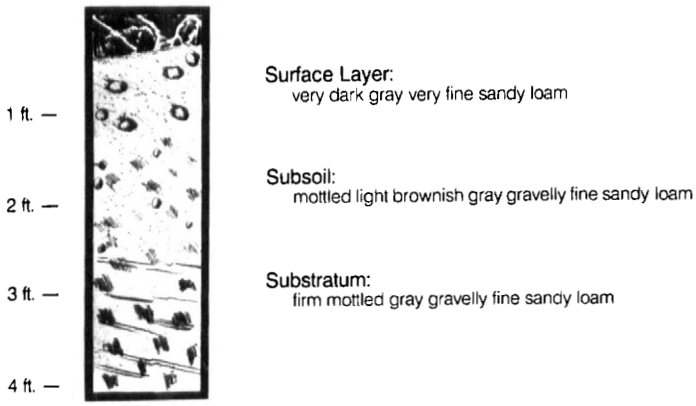
This soil is suited to cultivated crops and forage species, but it is wet in spring. The wetness hampers early planting of the crops that require a long growing season. Working the soil during wet periods results in the formation of ruts and the siltation of nearby streams. In areas of cropland, a subsurface drainage system, land grading, and open ditches can reduce the wetness, allowing the crops to be planted on schedule. Grazing of undrained pasture should be delayed until the soil dries out. Farm machinery should not be used when the soil is wet. Frost action is a limitation. Perennial plants that can withstand wetness and frost action should be selected for planting. For example, alfalfa does not grow well on this soil because frost heaving damages the roots. A better choice of perennial forage would be a grass-legume mixture that includes clover.

This soil is suited to woodland. The most common trees are red maple and eastern white pine. The trees are of low quality, though the stands may be densely stocked and yields may be high. The site conditions favor the production of fuelwood. Various species of wildlife are attracted to areas of this soil. In areas managed for fuelwood, scattered ribbon-shaped or kidney-shaped clearcuts should be established throughout the lot. The clearcuts should be no more than 200 feet across. The small clearcuts can reduce the hazard of windthrow and provide a varied habitat for wildlife. Harvesting methods that leave a diversity of trees, such as snag trees, trees with cavities, and a variety of size classes, improve the habitat for wildlife. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

This soil is poorly suited to urban development. The wetness, frost action, and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness if outlets can be established. If outlets are not available, sump pumps may be needed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Establishing lawns may be difficult because of the wetness.

657A—Ridgebury very fine sandy loam, 0 to 3 percent slopes, very stony. This nearly level soil is in drainageways. Areas are long and narrow or irregularly shaped and are 4 to 40 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:



In places the surface layer is thicker and has more organic matter.

Inclusions make up about 20 percent of the map unit. Among these are Walpole soils in scattered areas throughout the map unit, Scarboro soils in drainageways and hollows, and Woodbridge soils on low rises and near the margins of the map unit.

Soil features affecting use—

Drainage class: somewhat poorly drained or poorly drained
Depth to a seasonal high water table: 0 to 1.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used as woodland. In places the soil is classified as wetland.

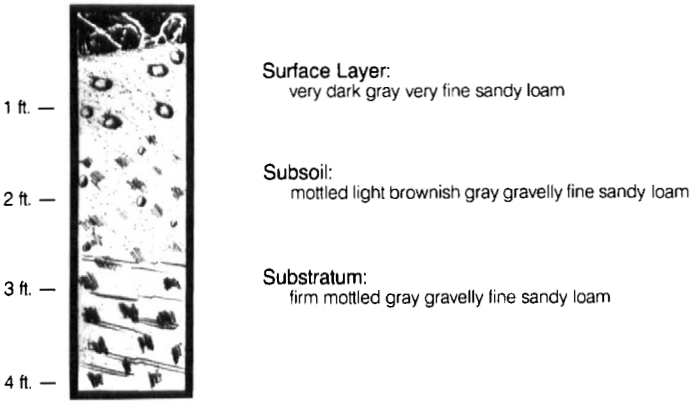
This soil is generally unsuited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. The soil is wet in spring and fall. Working the soil during wet periods results in the formation of ruts and the siltation of nearby streams.

This soil is suited to woodland. The most common trees are red maple and eastern white pine. The trees are of low quality, though the stands may be densely stocked and yields may be high. The site conditions favor the production of fuelwood. Various species of wildlife are attracted to areas of this soil. In areas managed for fuelwood, scattered ribbon-shaped or kidney-shaped clearcuts should be established throughout the lot. The clearcuts should be no more than 200 feet across. The small clearcuts can reduce the hazard of windthrow and provide a varied habitat for wildlife. Harvesting methods that leave a diversity of trees, such as snag trees, trees with cavities, and a variety of size classes, improve the habitat for wildlife. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

This soil is poorly suited to urban development. The wetness, frost action, and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness if outlets can be established. If outlets are not available, sump pumps may be needed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Surface stones can hinder landscaping. Even if the stones are removed, establishing lawns may be difficult because of the wetness.

657B—Ridgebury very fine sandy loam, 3 to 8 percent slopes, very stony. This gently sloping soil is in drainageways between hills. Areas are long and narrow or irregularly shaped and are 4 to 75 acres in size. Stones cover 0.01 to 3 percent of the surface.

A generalized profile of this soil is as follows:



In places the surface layer is thicker and has more organic matter.

Inclusions make up about 15 percent of the map unit. Among these are Woodbridge soils on low rises and near the margins of the map unit and soils that have slopes of less than 3 percent.

Soil features affecting use—

Drainage class: somewhat poorly drained or poorly drained
Depth to a seasonal high water table: 0 to 1.5 feet
Depth to bedrock: more than 60 inches
Permeability: moderate in the upper part of the profile and slow in the lower part
Available water capacity: moderate
Flooding: none
Potential for frost action: high
Shrink-swell potential: low

Most areas of this soil are used as woodland. In places the soil is classified as wetland.

This soil is generally unsuited to cultivated crops and forage species because of surface stones. Special machinery, such as stone pickers and bulldozers equipped with rock rakes, is needed to remove the surface stones before cropping can begin. The soil is wet in spring and fall. Working the soil during wet periods results in the formation of ruts and the siltation of nearby streams.

This soil is suited to woodland. The most common trees are red maple and eastern white pine. The trees are of low quality, though the stands may be densely stocked and yields may be high. The site conditions favor fuelwood production. Various species of wildlife are attracted to areas of this soil. In areas managed for fuelwood, scattered ribbon-shaped or kidney-shaped clearcuts should be established throughout the lot. The clearcuts should be no more than 200 feet across. The small clearcuts can reduce the hazard of windthrow and provide a varied habitat for wildlife. Harvesting methods that leave a diversity of trees, such as snag trees, trees with cavities, and a variety of size classes, improve the habitat for wildlife. The soil is wet in spring and late fall. Logging in midwinter, when the ground is frozen, or midsummer, when the soil is drier, helps to prevent the formation of ruts and reduces the likelihood that the equipment will become bogged down.

This soil is poorly suited to urban development. The wetness, frost action, and the restricted permeability are limitations. Fill is generally used to raise septic systems above compact soil layers and the seasonal high water table. Footing drains around the foundations can reduce the wetness if outlets can be established. If outlets are not available, sump pumps may be needed. Land shaping around the development can help to remove surface water and reduce the hazard of ponding, which can occur after heavy rains. Frost action is a limitation. A properly designed road subgrade is needed to prevent frost heaving. Because of the potential for frost action, foundations should have adequate footings. Erosion is a hazard during earth-moving operations. Common erosion- and sediment-control measures are hay-bale sediment traps and a good plant cover. Surface stones can hinder landscaping. Even if the stones are removed, establishing lawns may be difficult because of the wetness.

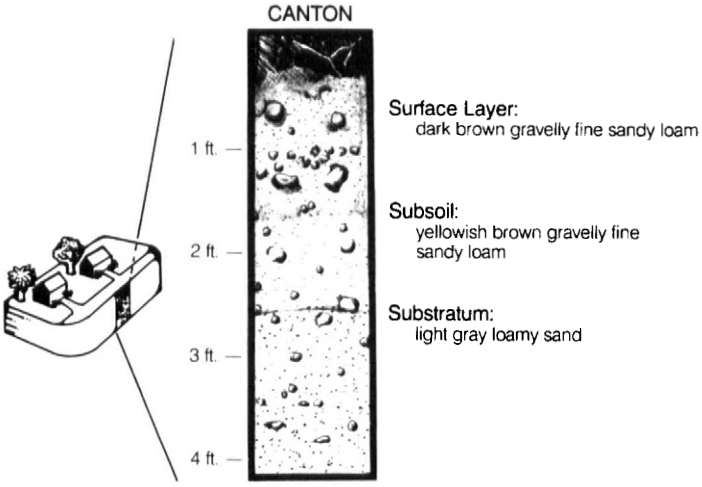
699—Urban land. This map unit consists of land that is covered by streets, parking lots, and buildings. Areas are rectangular or irregularly shaped and are 4 to 250 acres in size.

Inclusions make up 15 percent or less of the map unit. They consist of scattered areas of soil throughout the map unit.

This map unit is used for urban development. It is generally unsuited to cultivated crops, forage species, and woodland because of the urban development. Areas of the map unit been so altered by construction that onsite investigation is necessary to identify the limitations affecting any intended use.

799—Urban land-Canton complex, 3 to 15 percent slopes. This map unit consists of Urban land and a gently sloping and strongly sloping Canton soil. The Urban land and Canton soil occur as areas so intermingled that mapping them separately was not practical. The map unit is on broad plains and low hills that are partially covered by streets, parking lots, and buildings. Areas are rectangular or irregularly shaped and are 4 to 250 acres in size. They are about 55 percent Urban land, 20 percent Canton soil, and 25 percent other soils.

A generalized profile of the Canton soil is as follows:



Inclusions make up about 25 percent of the map unit. Among these are Udorthents in scattered areas throughout the map unit, Scituate and Newfields soils in hollows, Walpole soils in drainageways, and Chatfield soils on ridges. Also included, in the seacoast region, are Squamscott and Scitico soils in drainageways and Boxford and Eldridge soils in hollows.

Features of the Canton soil affecting use—

Drainage class: well drained
Depth to a seasonal high water table: more than 6 feet
Depth to bedrock: more than 60 inches
Permeability: moderately rapid or rapid
Available water capacity: moderate
Flooding: none
Potential for frost action: low
Shrink-swell potential: low

This map unit is used for urban development. It is generally unsuited to cultivated crops, forage species, and woodland because of the urban development. Areas of the map unit have been so altered by construction that onsite investigation is necessary to identify the limitations affecting any intended use.

997—Ipswich mucky peat, low salt. This nearly level soil is in tidal marshes adjacent to streams and rivers. Areas are long and narrow and are 4 to 10 acres in size. The content of salts is less than 1 percent in the surface layer.

A generalized profile of this soil is as follows:

1 ft. —

2 ft. —

3 ft. —

4 ft. —

Surface Layer:
very dark grayish brown mucky peat

Subsoil:
dark reddish brown mucky peat

Substratum:
dark reddish brown mucky peat

Inclusions make up about 15 percent of the map unit. Among these are scattered areas of soils that have mineral layers within a depth of 50 inches and areas in shallow basins where the content of salts is more than 1 percent.

Soil features affecting use—

Drainage class: very poorly drained
Seasonal high water table: at the surface or as much as 1 foot above the surface
Depth to bedrock: more than 60 inches
Permeability: moderate
Available water capacity: high
Flooding: frequent
Potential for frost action: high

Most areas of this soil are used as wildlife habitat. In most places the soil is classified as wetland.

This soil is generally unsuited to woodland. Because of the frequent flooding and high salinity, trees cannot grow in the tidal marshes.

This soil is unsuited to cultivated crops and forage species. Because of the periodic flooding by tidal seawater, the wetness, low strength, and the content of salts, farming is impractical. The only suitable plants are those that can withstand a high content of salts.

This soil is very poorly suited to urban development because of the tidal flooding.