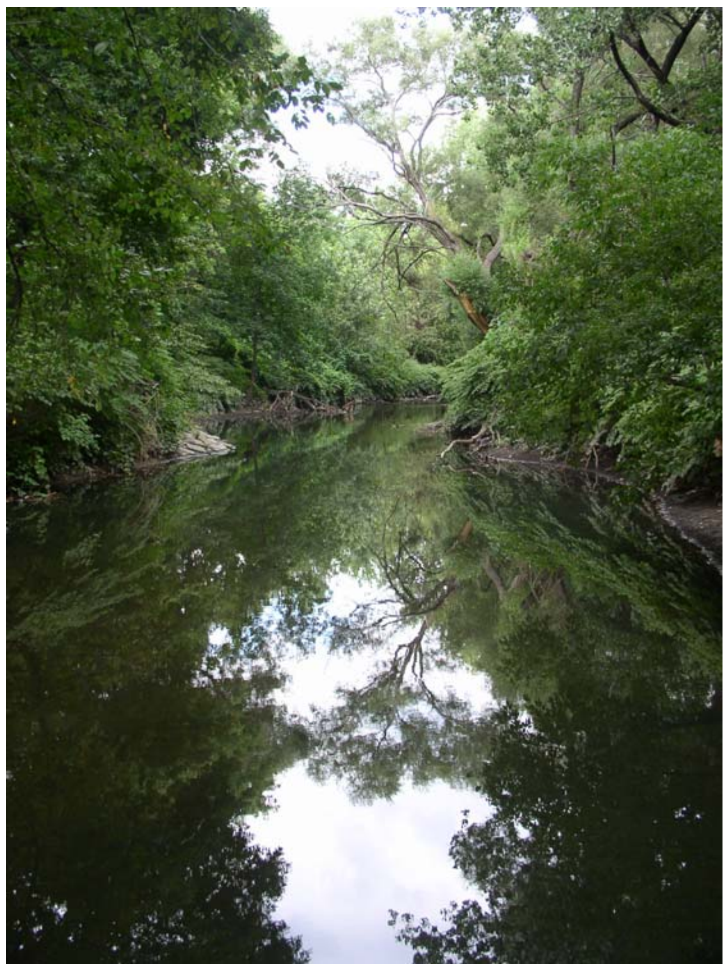
United States Department of Agriculture

Natural Resources Conservation Service

Soil Survey of Bronx River Watershed, Bronx, New York

**In partnership with
New York City Soil and Water Conservation District
and Cornell University Agricultural Experiment Station**

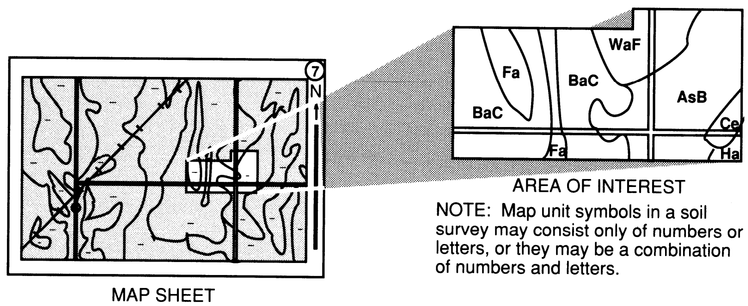


How to use this Soil Survey

Begin at Table of Contents on ***page v*** to find the list of sections in this survey. The survey is divided into two main parts: the general soil and urban environment information is in the ***General Nature of the Watershed*** section, and more detailed information about the soils is in the ***Detailed Soil Map Units*** section.

To find information about your area of interest, locate that area using the soil map document available for download along with this manuscript.

Note the map unit symbols that are in that area. Turn to the **Contents** and reference the **Detailed Soil Map Units** section, which lists the map units by symbol and name and shows the page where each map unit is described.



Special symbols found on the map are identified on the ***Special Symbols Legend*** attached to the map sheet document.

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

Major fieldwork for this soil survey was completed in 2006. Soil names and descriptions were approved in 2007. Unless otherwise indicated, statements in this publication refer to conditions New York City in 2007. This survey was made cooperatively by the United States Department of Agriculture-Natural Resources Conservation Service, the NYC Soil and Water Conservation District, and Cornell University Agricultural Experimental Station.

Cover: (*clockwise from upper left*) Lafayette Avenue Park is situated on the Bronx River beside a recycling plant, with high-density residential and business development along Edgewater Road in the background, an area that demonstrates the variety of land use types within the Watershed; lush vegetation and tree canopy frame a picturesque view up the Bronx River, north of the 233rd Street stone bridge; Bronx River Forest is one of the few remaining old-growth forests and functioning floodplains in all of New York City. With an area of Olinville soils in the foreground, the Forest gives way to the Metro-North Railroad corridor along its borders.

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

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Acknowledgments

This soil survey is a result of efforts by the United States Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS) in cooperation with the New York City Soil and Water Conservation District and the Cornell University Agriculture Experiment Station.

The New York City Department of Parks and Recreation and the Bronx River Alliance also contributed to the successful completion of this project.

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Foreword

This is the first soil survey conducted by the USDA-NRCS of an urban watershed. As such, it exemplifies the Agency's watershed approach to resource management, and its efforts to broaden the conservation partnership and build new alliances. This survey provides soils information to a largely underserved customer base, the 80 percent of our population now living in metropolitan areas.

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

This soil survey is designed for many different users. 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. A strong emphasis was placed on providing useful soils information for storm water management, as well as restoration and revegetation efforts in the urban environment.

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

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

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

Soil Survey of Bronx River Watershed Bronx, New York

By Richard K. Shaw, Lindsay Reinhardt, and Jacob Isleib, USDA-NRCS.

Fieldwork by Steven Carlisle, Steven Indrick, Jacob Isleib, Richard Kruzansky, Lindsay Reinhardt, Richard K. Shaw, Philip Smith, and Olga Vargas, assisted by Maria Cadavid, David Cochran, and Yiyi Wong, USDA-NRCS.

General Nature of the Watershed

The Bronx River flows south 24 miles from the Kensico Reservoir in suburban Westchester County to the East River in New York City (Figure 1.1). The Soil Survey area covers 6900 acres along the last 8 miles of the river that pass through the residential, parkland, and industrial landscapes of Bronx County. Open space in the watershed includes historic Woodlawn Cemetery (400 acres); Bronx Park (718 acres), the home of the New York Botanical Garden, one of the most distinguished gardens in the world, and the Bronx Zoo, one of the largest wildlife conservation parks in the US; Crotona Park (128 acres); and Soundview Park (196 acres). Some of the oldest woodlands in the City can be found in the Native Forest of the Botanical Garden and the Bronx River Floodplain Forest to the north.

Bronx County population is listed at 1.3 million in the 2000 Census, ranking fourth of the city's five boroughs, with a density of 31,709 people per square mile. It has the highest Hispanic population (48%) and second highest Black or African American population (36%) among the boroughs. Distinctive residential neighborhoods in the survey area include Bronx's Little Italy, centered around Arthur Avenue and East 187th St, and the Woodlawn section in the northwest corner of the watershed, characterized by a large Irish American and Irish immigrant population.

History of the Bronx River
From the Bronx River Alliance.

Before humans made significant changes to the landscape, small tributaries in the upper reaches of what is now the Kensico Reservoir comprised the Bronx River's headwaters. For most of its course, the river meandered through floodplain forests, with wetlands, beaver dams, and oxbows in a low-gradient valley. In some places, the river valley narrowed through occasional bedrock ravines such as the long ravine at what is now the New York Botanical Garden. The river ended in an expanse of salt marsh at the confluence with the East River.

The Bronx River attracted European traders in the early 1600s for the beaver that proliferated there (McNamara, 1984). In 1639, a wealthy Swede named Jonas Bronck purchased 500 acres from the Mohegan Indians that lived along the river. Over time, mills began to sprout up along "Bronck's River." By the mid-1700s as many as 12 mills were obtaining water power from the river to manufacture products that included paper, flour, pottery, tapestries, barrels and snuff. The river valley remained thickly forested well into the 1800s. The water was considered clean enough that during the 1820s and 1830s the New York City Board of Aldermen debated tapping into it to supply the growing city with drinking water.

Figure 1.1. Bronx River Watershed (HydroQual, 2003)

Construction of the New York Central Railroad in the 1840s completed the transition of the Bronx River valley into an industrial corridor. In 1885, most of the water in the headwaters of the river began to be diverted for New York City's water supply as part of the New Croton Aqueduct. A dam was built to collect water in the Bronx River Reservoir (now known as the Kenisco Reservoir) and supply it to the Bronx River Pipeline. Completion of the Kensico Dam in 1915 held the upper reaches of the river in the reservoir near New Castle and reduced the river's flow by one-quarter. During this time, people often used the river for waste disposal. By the end of the nineteenth century the Bronx River had degenerated into what one official commission called an "open sewer" (Bronx Valley Sewer Commission, 1896).

In response to the decrepit state of the river and the escalating forces of urbanization, the turn of the twentieth century also saw the beginning of attempts to reclaim and protect the river. Sewage was diverted from the river, and upland areas bordering the river were set aside for preservation. Ironically, construction of the Bronx River Parkway was seen as a conservation measure at the time. Though the parkway did help to preserve large tracts of parkland that still exist today (including Garth Woods, the NYBG and the Bronx Zoo), reclamation work during also included straightening the river, armoring the banks and filling the floodplain, acts that contribute to many of the river's current environmental problems.

In 1974, a small band of community activists formed Bronx River Restoration and began the arduous process of cleaning up and restoring the river. Their effort gained strength and numbers in 1997 when Partnerships for Parks convened the Bronx River Working Group and brought together more than 60 community organizations, public agencies and businesses committed to reclaiming the river and improving access to it throughout the Bronx.

Ecological restoration of the Bronx River took another tremendous step forward in 2001 when the Bronx River Working Group created the Bronx River Alliance to continue this work into the foreseeable future. As a result, efforts intensified in both Westchester and the Bronx to restore habitat, limit invasive vegetation and study watershed solutions.

Climate

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

The climate tables (Tables 1-3) were created from data for New York City as recorded in Central Park during the period from 1971 to 2000. Table 1 provides temperature and precipitation data, Table 2 shows probable dates of the first freeze in fall and the last freeze in spring, and Table 3 provides data on the length of the growing season.

In winter, the average temperature is 34.9 degrees F and the average daily minimum temperature is 28.6 degrees. The lowest temperature on record, which occurred on February 9, 1934, is -15 degrees. In summer, the average temperature is 74.7 degrees and the average daily maximum temperature is 82.9 degrees. The highest temperature on record, which occurred on July 9, 1936, is 106 degrees.

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

The average annual total precipitation is about 49.51 inches. Of this, about 33.97 inches, or 69 percent, usually falls April through November. The growing season for most crops falls within this period. The heaviest 1-day rainfall on record was 8.28 inches on September 23, 1882. Thunderstorms occur on about 15 days each year, and most occur in July.

The average seasonal snowfall is 22.2 inches. On an average, 19 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 25.5 inches on December 26, 1947.

The average relative humidity in mid-afternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 72 percent. The sun shines 64 percent of the time in summer and 52 percent in winter. The prevailing wind is from the west. Average wind speed is highest, 8.7 miles per hour, in March.

Physiography and Geology

The Bronx River Watershed is located in the New England Upland physiographic province, part of the Appalachian Highlands region. The bedrock of the province is made up of metamorphic and igneous rocks of Precambrian and Early Paleozoic Age (from several billion to about 300 million years old) in a northeast-trending belt. A narrow strip of the Upland extending into New York City, Westchester County, and southwestern Connecticut is commonly referred to as the Manhattan Prong.

Several types of bedrock can be found in the survey area. The oldest rocks, the *Fordham Gneiss*, date back one billion years to the Middle Proterozoic of the Precambrian. These are metamorphosed igneous rocks typically well-foliated with a distinct banded appearance: light bands of quartz and orthoclase feldspar and dark bands of biotite, plagioclase, and hornblende. These rocks can be found on the west side of the river from the northern end of the Bronx to the NYBG.

Brock and Brock (2001) recently provided a new interpretation of the geologic history and rock type associations of the Manhattan Prong, including the area of the Bronx River Watershed (Figure 1.2). They proposed the Ned Mountain formation, a “complex package” of rock above the Fordham Gneiss that originated during the split of the ancient supercontinent about 560 million years ago, during the Late Neoproterozoic. It is composed of a wide variety of rock types, all

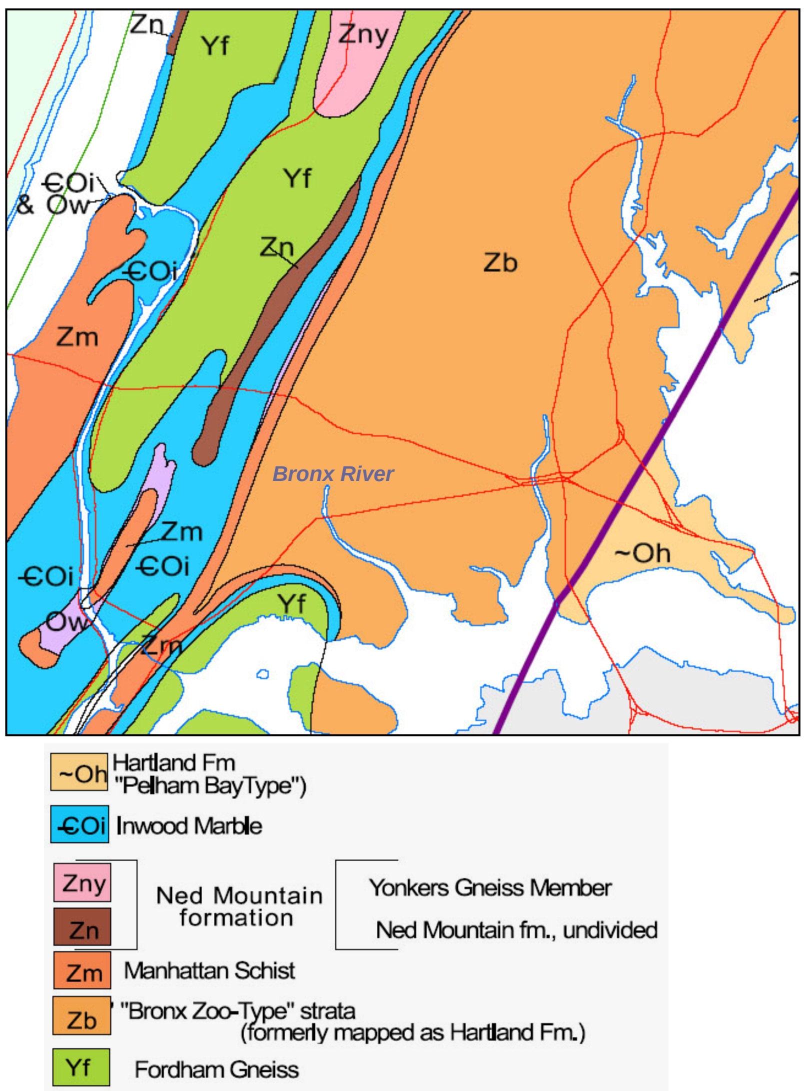


Figure 1.2. Bedrock Geology of the Bronx (Brock and Brock, 2001)

present in the Watershed area to some extent, linked by a distinctive suite of mafic (dark colored igneous, iron and magnesium rich) rocks. Members of the Ned Mountain formation include:

- *Yonkers Gneiss,* described as metavolcanic, which makes up the bedrock in a northwest section of the survey area. The rocks of this formation can vary, but quartz, mica, and the distinctive pink potassium feldspar are usually present.
- *Manhattan Schist,* a coarse grained, well foliated rock composed of muscovite, biotite, plagioclase feldspar and quartz, with a noticeable shiny appearance. It forms a thin band along the western edge of the watershed from the Botanical Garden to Crotona Park.
- *“Bronx-Zoo Type” strata*, formerly mapped as the Hartland Formation, but containing dark colored metamorphic rocks (amphibolites) similar to Ned Mountain members. It covers most of the northeastern and southern portions of the watershed.

The youngest rocks, the *Inwood Marble,* originally formed on a shallow-water continental shelf about 500 million years ago during the Cambrian and Early Ordovician Periods of the Paleozoic Era. These are metamorphosed sedimentary rocks, nonfoliated and coarse-grained, white to blue-gray, composed of calcite and dolomite. As these are softer and more erodible, they are usually found at lower elevations in the City. In the Watershed they underlie the Bronx River channel from the northern end of the survey area to the New York Botanical Garden.

Except for the marble, all of these rocks have excellent load-bearing characteristics for foundations, but low productivity as water bearing units. Conversely, the Inwood Formation is moderate to good for foundations, unless the area has voids and decayed parts that make it unsuitable. It does serve as a productive water bearer, particularly in low lying areas.

During soil formation from the gneisses and schists, mica and feldspar are important in the production of secondary clay minerals, and the “heavy” minerals such as hornblende and magnetite provide a nearly inexhaustible source of iron oxides. The latter are responsible for the bright yellowish brown colors in well aerated soils formed from these rocks (Tedrow, 1986).

However, as outcrops of these formations are discontinuous, and the bedrock is often situated tens of meters beneath the surface, the unconsolidated materials overlying the bedrock generally have a more important influence on soil properties and land use. The New York City area was covered by ice sheets several times in the past, and glacial activity has shaped much of the natural landscape and provided the surficial deposits that serve as parent material for soil formation. Glacial deposits are commonly divided into two types: till and outwash. Glacial till refers to those materials deposited directly by the flowing ice. Because till characteristically exhibits a wide range in particle size, from clay to boulder, it is described as unsorted. Till deposits also lack stratification, or layering. They can be shallow in areas where the ice has done more scraping and abrading of the bedrock, or as much as several hundred feet deep. Glacial outwash is deposited by glacial meltwater. Outwash deposits are generally characterized by a narrower range in particle size, related to the energy of the depositional environment, from a fast moving stream at one extreme, to the slow sedimentation in a glacial lake at the other. Stratification, or layering, is common in outwash deposits.

At the turn of the last century, the U.S. Geological Survey mapped the surficial geology of the New York City area (Merrill et al, 1902) at a scale of 1 inch to the mile. The watershed area includes till, thin till (with numerous bedrock exposures), and stratified “drift” among the glacial deposits, with alluvium and tidal marsh the important post-glacial materials (Figure 1.3). Most of the watershed was originally covered with till and thin till.

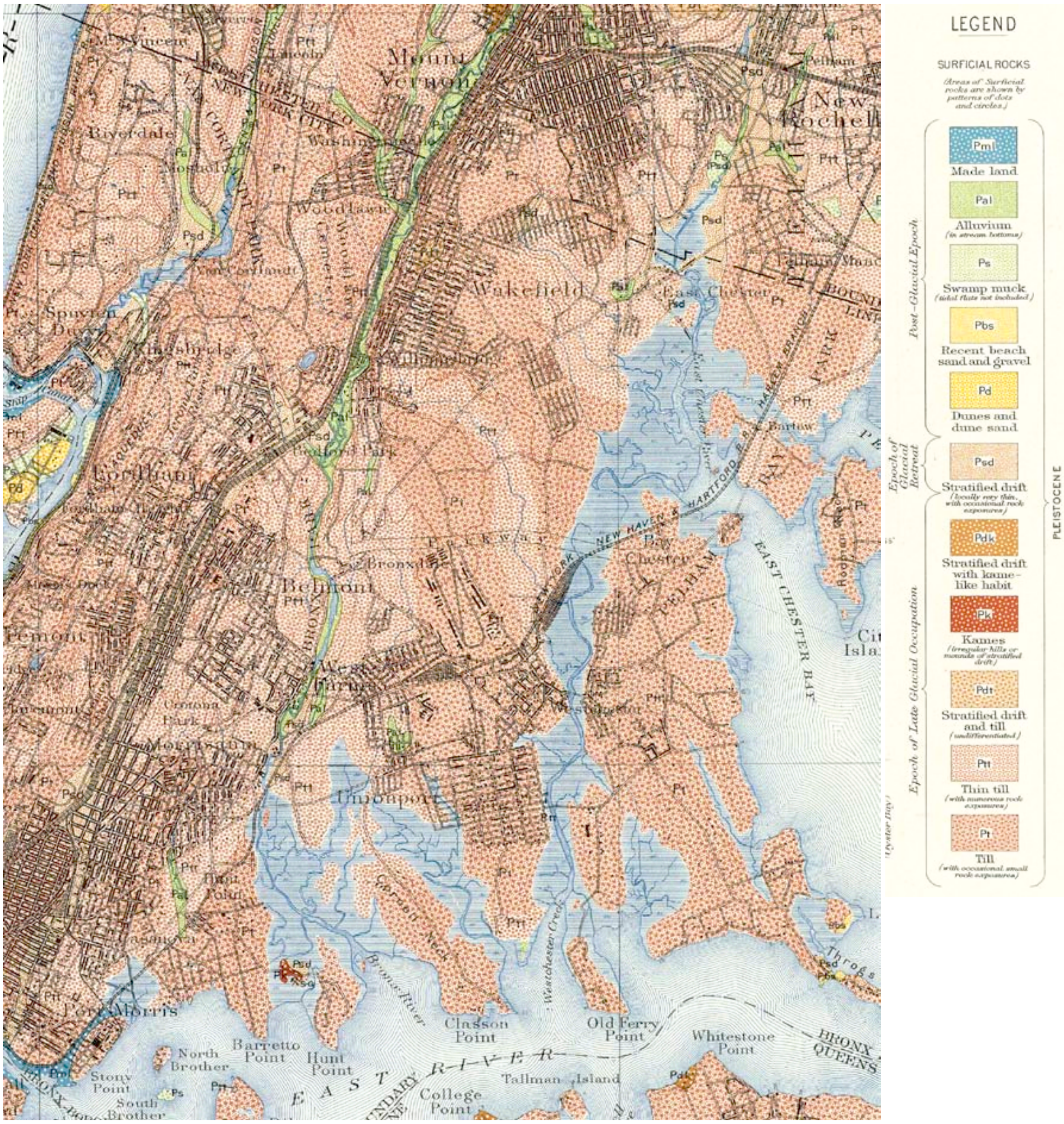


Figure 1.3. Surficial Geology of the Bronx (Merrill et al, 1902)

More recently, using historical maps and information, Eric W. Sanderson and Danielle LaBruna of the Wildlife Conservation Society created a map of the historical ecology of the Bronx River Watershed in 2004 (Figure 1.4). The ecosystem distribution before widespread development included 70 percent upland and 27 percent wetland. In addition to the extensive area of tidal marsh at the south end of the watershed, the wetland areas included a large freshwater marsh, Bear Swamp, near the west end of the Bronx and Pelham Parkway. Sanderson and LaBruna also noted how the course of the river has changed over time, both from natural and human causes.

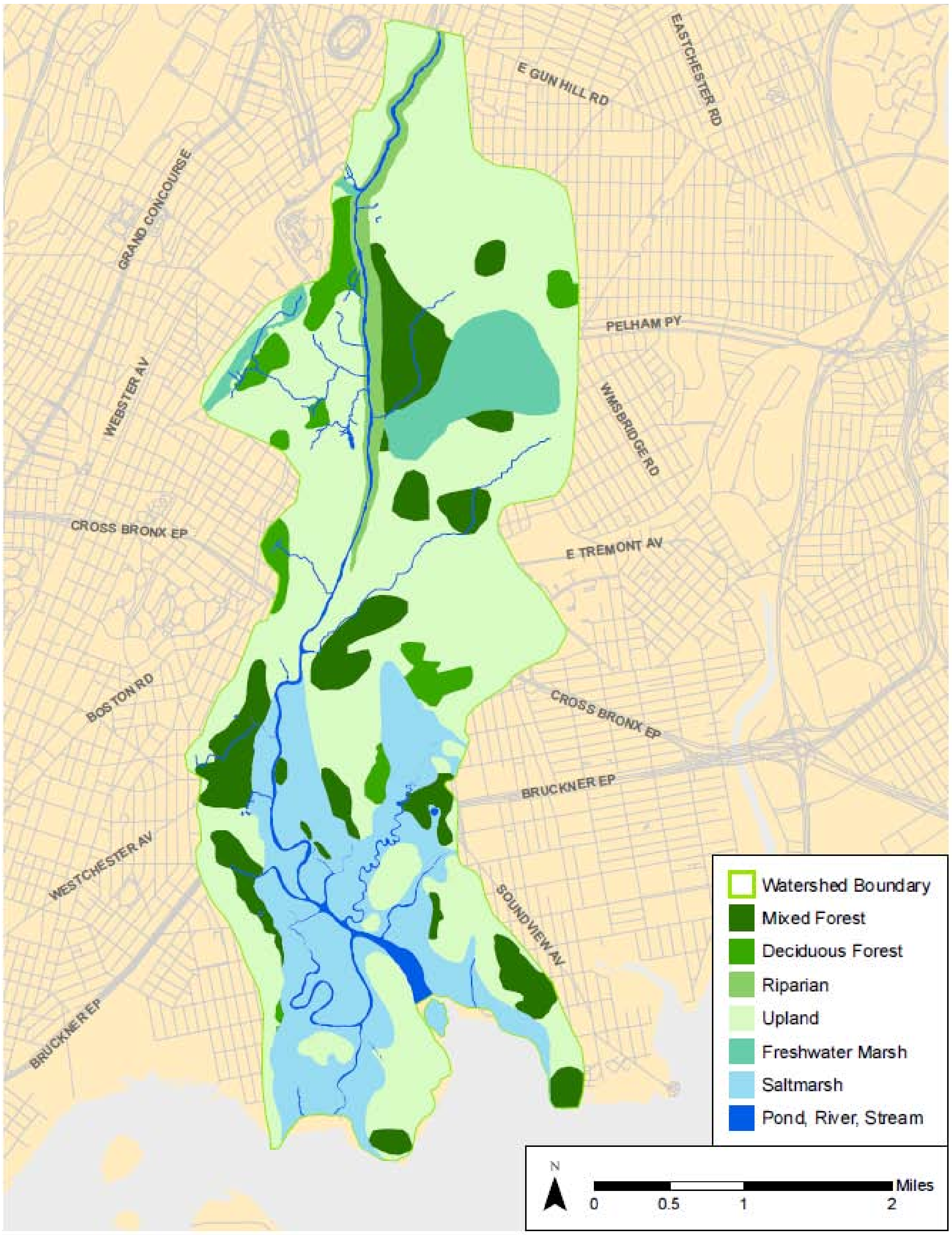


Figure 1.4. Historical Bronx River, 1781-1851 (Sanderson and LaBruna, 2006)

State of the River
From the Bronx River Alliance

In their Ecological Restoration and Management Plan in 2006, the Bronx River Alliance summarized the state of the Bronx River as follows:

- *Disturbed hydrology* exacerbates erosion, sedimentation and habitat disturbance. This is caused by heavy development in the watershed and leads to physical changes in the stream through scouring and deposition. Sediment loadings have not been modeled, but appear to be excessive and prohibitive of benthic community health.
- *Poor water quality* caused by input of sewage and animal wastes into the river has lead to impaired water quality that violates health standards and makes the water unsuitable for public recreation. Sewage inputs also contribute to low dissolved oxygen (DO) levels that limit the growth and survival of aquatic organisms.
- *Invasive vegetation* limits the diversity of the vegetative community and contributes to bank instability. These invasives also exclude trees from the river bank, thus limiting the supply of large woody debris necessary to create certain habitats.
- *Degraded habitat* is a cumulative effect of riparian management, channel alterations, hydrology and water quality. Diverse flora and fauna is prevented from establishing without proper high quality habitat.
- *Dams* limit connectivity between river sections and impede passage of diadromous fish (species that use both marine and freshwater habitats during their life cycle). These barriers also disturb natural sediment flow.

In the Bronx River corridor, landform features, stream morphology and vegetation patterns have been so heavily altered that most of the characteristics of a healthy river can never be completely restored. Instead, a more realistic objective is to increase the number and length of river reaches which meet the conditions of an ecologically functional river in order to create a system that is sustainable and resilient and that possesses desired ecosystem conditions.

Ecological objectives for the Bronx River and the landscape surrounding and draining into the river include identifying, establishing and maintaining beneficial characteristics in the urban landscape to help:

- *Improve hydrology* to reduce erosion, sedimentation and habitat disturbance and increase base flow through storm water infiltration;
- *Improve water quality* by reducing direct and indirect sewage inputs and illegal discharges and by increasing natural treatment of storm water through infiltration, thus reducing direct releases from combined sewer outflows (CSOs);
- *Increase plant diversity* through targeted removal of invasive vegetation increasing the area of native vegetation and restoring healthy soil conditions;
- *Restore habitat* through ecologically sound riparian management techniques, improved hydrology and water quality, and restorative channel alteration;
- *Increase connectivity between reaches,* facilitate passage of diadromous fish and restore natural sediment flows.

Several factors limit the attainability of some of these ecological objectives. Most geographic, human population and infrastructure characteristics of the watershed are fixed and unavoidable. These limit the extent to which restoration work can bring about higher levels of change within the watershed. For example, the estuary's water quality is dependant on the water quality of the East River with which it mixes. Some other challenges to consider when evaluating and planning ecological restoration and protection within the Bronx River include the following.

- Activities upstream in Westchester County affect the hydrology, channel morphology, invasive species transport and water quality in Bronx County.
- High-density urban development and a highly engineered sewer system have profoundly altered the water cycle in the Bronx, preventing groundwater infiltration and redirecting the natural conveyance of storm water to the river.

- Limited open space in the Bronx reduces area available for restoration work, which forces efforts to be concentrated along the river corridor.
- A lack of data describing natural processes in the watershed highlights the need for more widespread monitoring that will improve ecological and wildlife assessments.

Watersheds and Sewersheds

Watersheds are universal, well-defined areas that provide a common basis for discussion of water, related resources, and landscape processes (NRCS Strategic Plan, 2007). More specifically, a watershed is an area of land where all of the water that is under it, or drains off of it, flows to a common waterway. The water all drains to the same place, because in a natural landscape there are visible topographic divides that will always force water to flow downhill to the lowest elevation. Logically, water never flows uphill. Watersheds can be observed at a variety of scales, and can vary greatly in shape and size. In the continental United States there are 18 major drainage areas. These geographic areas contain either the drainage area of a major river, such as the Mississippi, or the combined drainage areas of a series of rivers. These major drainage areas can be divided into 160 principal river drainage basins containing more sub basins or about 12,700 smaller watersheds (USGS, 2006).

Looking at natural systems on a watershed basis is critical because they provide the context within which we can meaningfully evaluate aquatic habitats and the movement of water, nutrients, sediment, and energy through the landscape (NRCS Strategic Plan, 2007). Watersheds inherently link both human and ecological communities, and this connection cannot be ignored. Everything that occurs upstream (regardless of whether it has a positive or negative effect) in a watershed will eventually impact all of the ecological communities downstream.

Urbanization inherently eliminates natural areas where storm water can infiltrate the soil. The smaller parcels of open space that remain are rapidly overwhelmed by the volume of runoff they will receive during rainfall events. Without some form of engineered drainage, pavement will not allow storm water runoff to infiltrate. The end result would be major flooding and masses of disgruntled people standing in puddles of storm water in their living rooms. This situation is clearly unacceptable. Therefore, the concept of a sewershed was born out of the realization that storm sewers and drains are necessary to prevent destructive flooding in highly urbanized areas.

Sewersheds are best defined as urban areas where water movement is dictated by a complicated network of sewers and drains. Water that used to run through streams, rivers and underground flow is instead directed into pipes designed to rapidly remove water from the land’s surface. Water that falls onto roofs usually drains into rain gutters which will eventually drain to storm sewers. Water that falls onto driveways and streets flows into storm drains at the side of the road, which are also connected to storm sewers. Water that infiltrates the soil is sometimes collected in weeping tiles, which are again often connected directly to the storm sewer (Riversides Stewardship Alliance, 2006). In a combined sewer system, storm water joins the sanitary sewage and flows to a wastewater treatment plant. In the event of a significant rainstorm, this combined volume can exceed the capacity of the collector pipe and treatment plant, resulting in direct discharge of untreated sewage and storm water to a surface water body via a combined sewer overflow (CSO) outfall.

It is important to note that sewersheds are still a part of their larger parent watershed. They can best be thought of as engineered sub-basins within a larger watershed.

The survey area, the topographically defined Bronx River Watershed, is made up a combination of unsewered areas and several sewersheds (Figure 1.5). The 1,506 acres that lack sewers include Woodlawn Cemetery, the New York Botanical Garden and the Bronx Zoo. These areas were never intended to be developed, so the city opted not to build sewers, allowing storm water to infiltrate naturally instead. Any runoff from these areas flows directly via overland flow to the Bronx River.

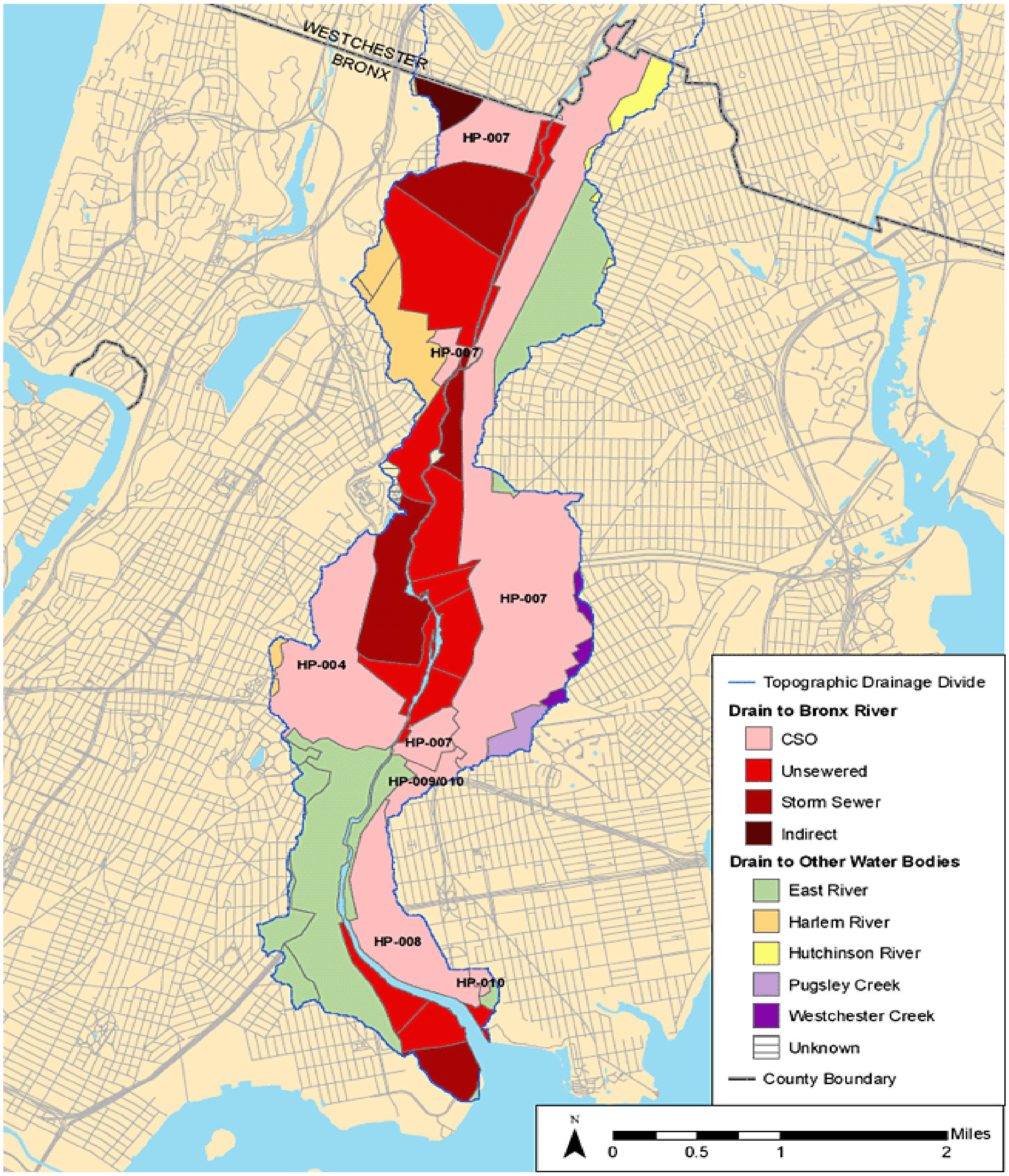


Figure 1.5. Bronx River Watershed Drainage (Hydroqual, 2003)

In the sewered portions, much of the storm water entering the area is captured and removed from the watershed. A total of 2,657 acres of combined sewer areas drain to the Hunt's Point Water Treatment Plant, which sends its effluent into the Upper East River. In the event of an overflow, however, these areas discharge directly into the Bronx River via five outfall pipes. Portions of the watershed also consist of combined sewer areas that discharge during overflow to the East, Harlem, and Hutchinson Rivers.

Sewersheds have altered the path that storm water now flows in the Bronx. This path is now the product of modern political boundaries and human created landscapes or “anthroscapes”. Preferential flow paths were altered in many areas when city engineers carved the city into sub-basins and installed sewers to dictate which water treatment plants would treat the storm water in each area.

Urban Soil Survey

The first soil surveys in the United States, more than 100 years ago, were intended to help guide agricultural development and improve agricultural practices at a time when farmland in our country was expanding. Today the amount of land in farms nationwide, and in the northeast in particular, has been decreasing, and both the nation and the world are becoming more urbanized. According to U.S. Census figures, the proportion of our population in urban areas has increased from about 40 percent in 1900 to 80 percent in 2000.

Soils play an essential role in maintaining a healthy and productive environment. They sustain biological activity, diversity, and productivity; regulate and partition water and solute flow; filter, buffer, degrade, immobilize, and detoxify organic and inorganic materials; cycle carbon and nutrients; provide support for buildings, roads, playing fields; and serve as a source of topsoil, fill, sand, and gravel (Karlen et al., 1997). Information on the properties, suitability, and limitations of the soils in an urban area can have important implications for human health and quality of life of its inhabitants.

A Soil Survey is a detailed report on the soils of a particular area. It contains a soil map, information on the physical and chemical properties of the soils, and predictions of soil behavior for selected land uses. The USDA-NRCS has completed soil surveys of several cities, including Washington, D.C. (1976), St. Louis (1982), and Baltimore (1998), but the urban population is still a largely underserved customer base for soils information. Potential users of an urban or suburban soil survey include planners, community decision makers, engineers, builders, developers, home buyers, conservationists, recreationists, teachers and students (Smith, 1976). Potential uses of the Bronx River Watershed Soil Survey include:

- Managing open space and parkland, including the restoration and revegetation of degraded or impaired areas;
- Identification of wetlands and wildlife habitat areas;
- Understanding urban hydrology in order to improve and protect water quality through erosion control and better watershed management.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas (Pavement & buildings, Rock outcrop) in the Bronx River Watershed. The information includes descriptions of the soils and miscellaneous areas and their locations, and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of plants: ornamental, native, and invasive; 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. This unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

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

In an urbanized setting, human disturbance has altered the soil properties and the soil landform patterns to varying degrees. This disturbance includes mixing or removal of horizons, addition of artifacts and/or new parent materials, and creation of new landforms. With the help of old maps or aerial photos and historical records, some conclusions can be drawn about extensive areas of “fill.” However, smaller areas of disturbed or filled soils can show no relation to landform or vegetation, i.e., no outward appearance that the soil has changed. This makes it more difficult to predict the soil patterns in urban areas and requires more field checking.

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

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

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

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

After soil scientists located and identified the significant 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.

Formation of the Soils

This section describes the factors of soil formation and the processes of horizon differentiation and relates them to the soils in the survey area.

Factors of Soil Formation

Bodies of unconsolidated material, deposited by geologic processes or human (anthropogenic) activities, serve as the raw constituents for soil formation. Soil forming processes, generalized as additions, losses, translocations, and transformations, begin to alter the original material and form distinctive horizons.

The parent material, climate, plant and animal life, relief, and time determine the characteristics of the soil at a given location. These factors of soil formation are so closely interrelated in their effects on the soil that one factor can change the effect of the other four. In the BRW, the local formation of soil is predominantly differentiated by parent material, relief, and human activities.

The soils in the BRW have been greatly influenced by commercial and residential development as well as industrial use. During the process of alteration, certain areas were leveled or cut and filled to such an extent that much of the original soil has been disturbed or replaced.

Parent Material

Parent material is the unconsolidated mineral or organic material in which a soil forms (Table 12). It determines the initial physical, chemical and mineralogical properties of a soil. In this Survey, soils formed in naturally (or geologically) deposited materials are differentiated from those formed in human transported materials. The latter are also known as “anthropogenic” soils.

Many of the soils in the Bronx River Watershed formed in parent material of glacial origin. Vast glaciers advanced over Bronx County during the Pleistocene age, the last phase of which (the late Wisconsinan) made its terminus as far south as Richmond, Kings, and Queens Counties. An ice sheet will incorporate (entrain) or modify the existing surficial materials, and eventually redeposit debris from within during advance and/or retreat. Glacial deposits may originate from locally entrained material or from sediments carried great distances. Glacial tills are left directly by the ice without well-ordered sorting due to suspension in liquid water. As till deposits can vary widely in thickness, soils can range from deep to bedrock on uplands to moderately deep and shallow on some ridge tops and sideslopes. Glacial outwash is stratified sediment (i.e. gravel, sand, silt, and clay) that was sorted and deposited by meltwater in glacial lakes and river plains.

Post-glacial geologic activity is also a source of parent material in the BRW. Alluvial deposits consist of sorted sediments from contemporary rivers and streams. Silt-concentrated sediments and organic materials have accumulated in low-lying areas in the Botanical Garden and Bronx Zoo.

Human activities can disturb the original naturally deposited materials through cutting/truncating, topsoil stripping, and other removals. Filling (burying existing soil, rock, or marsh with mined soil or waste materials such as coal ash or dredge spoils), is another form of anthropogenic disturbance. These additions of human transported material are themselves parent material for the subsequent formation of soil. Even a naturally deposited parent material or soil, unaltered and translocated by humans, is considered a human transported (parent) material. These removals and additions may reflect a past human need to change undesirable soil conditions or to modify landforms or landscapes for development projects. Many areas of the BRW feature not only human alteration of natural parent materials, but also the deposition of fills.

Climate

Climate, particularly precipitation and temperature, affects the physical, chemical, and biological relationships in the soil. It influences the rate of organic matter decomposition and the physical and chemical changes in rock, also known as weathering. Leaching, the removal of soluble materials from one zone to another, depends on the amount of rainfall and the movement of water through the soil. Climatic conditions also control the kinds of plants and animals living in and on the soil.

The climate of the BRW between roughly 80,000 to 10,000 years ago caused the most recent and marked glacial advance of the North American ice sheet. The glacial parent materials deposited as a result of glaciation were discussed prior.

Cold winters and warm summers characterize the modern climate of the BRW. The watershed is set in the New England Upland physiographic province at an elevation range of about 0 to 160 feet. The mild temperatures and abundant rainfall have resulted in the depletion of organic matter and considerable leaching of soluble bases. Because climatic variations within the watershed are negligible, climate has probably not caused local differences among the BRW soils.

The Urban Heat Island (UHI) effect has a noted impact on the current climate of Bronx County and the BRW. As compared to rural and suburban areas, the relatively lower levels (or lack) of evapotranspiration by vegetation, the absorbent thermal physical properties of urban construction materials, and the wind-slowing urban topography imposed by human structures cause surface and overall ambient temperatures to rise. The heat island effect is more evident at night than during the day due to the release of absorbed heat and its interplay with atmospheric convection. The naturally formed soils of the BRW owe little to the UHI effect, being that these 10,000+-year-old soils have only been subject to these conditions for less than 100 years. However, the higher post-urbanization surface temperatures will likely effect physical and chemical weathering rates in as well as other local factors such as plants and animals.

Plant and Animal Life

Plants, burrowing macro-fauna, meso- and micro-fauna, microbes, and other organisms markedly influence soil formation. The type of plant-animal communities in and on the soil are subject to the other soil forming factors, as well as the existing soil conditions. These spatial characteristics help form an organism's habitat, and influence their ecological niche.

The soils in natural areas of the BRW formed mainly under a mixture of trees, shrubs, and herbaceous plants. Soil biologic life is a vital contributor to the cycling of organic matter. Plants and animals add organic matter to the soil surface, which is subsequently acted upon by macro- and meso-fauna, microbes, fungi, and direct chemical reactions. Organic matter faces multiple stages of digestion in the soil food web and is moved between the organic and mineral soil horizons by mobile organisms such as earthworms. As plant roots penetrate the soil, seeking water and nutrients released by microbes, they in turn stimulate dormant organisms and initiate the process of organic matter digestion.

In better-drained landscape positions, organic matter decomposes at a moderate rate because of the moderate temperature, moisture supply, and the high acidity level. In wetter landscape positions, organic matter decomposes more slowly and accumulates. An example is the Natchaug soil of upland depressions.

In general, plant and animal activity have less influence on soils in urbanized zones or fragmented natural areas. Although an isolated, highly trafficked natural space may be less abundant in macro-organisms than a healthy forest or large park, plant and animal communities will still be present. Further, a developed (or paved) area may be almost completely void of plants and macro-organisms. In these places, surface additions of organic matter are null and subsurface soil organism activity slows significantly. However, soils are resilient biological habitats. Soil microorganisms may assume a dormant state until they are stimulated by root or macro-organism activity. Urbanized areas that are returned to an open, vegetated state may in time resume normal rates of biological activity.

Invasive species are well-established in the BRW, both plant and animal. The European earthworm is a consistent presence in Watershed forests. Due to its habitual feeding at or near the soil surface on less-decomposed organic matter, forest soils in the BRW do not tend to exhibit thick leaf litter layers. Japanese Knotweed is an example of an exotic invasive plant that threatens to offset native plant communities and alter organic matter additions in the Watershed.

Relief

Relief causes spatial differences in runoff, erosion, aeration, drainage, and soil temperature. The relief of the BRW is influenced by the native bedrock, glacial processes, the Bronx River, and human alteration.

The interaction between water and relief directly influences soil formation. Within a specific climate, relief is a determinant of the amount of water a landform position receives, the amount of water that infiltrates into the soil, and how that water moves through the soil. Slope gradient, shape, length, and direction are relief properties particularly important to soil hydrology and development. Water molecules are required for chemical weathering reactions, and soil water is responsible for the physical movement of minerals within the matrix. The translocation of clays and iron oxides in the soil matrix is a key factor in soil horizonation (i.e. the development of color, structure, and texture), which itself can be used as a measure of soil development.

Runoff is more rapid on steep and very steep soils. This generally contributes to less vigorous plant growth and more severe erosion. Consequently, soils on steep slopes exhibit thinner and less distinct horizons.

Time

Time enables relief, climate, and plant and animal life to change the parent material into a soil. The length of time that soil material has been exposed to the soil forming processes accounts for some differences between soils. The time needed for a soil to form a well-defined profile also depends on the other four factors. For example, less time is needed for a profile to develop in a warm and moist climate than in a cool and dry one. Less time is also needed for a profile to develop in coarse-textured than in fine-textured material.

The length of time that a soil has been forming is generally reflected in the profile. Soils that do not have a B horizon or with little or no evidence of development are commonly considered *young*. Soils that have a distinctive B horizon are considered *mature* or well-developed. The weathering of a soil, however, depends on the interaction of all five soil-forming factors.

Identification of *in situ* soil development in soils formed from human transported materials can be difficult. There is some agreement concerning the amount of time needed for structural development and the movement of soil minerals, however these times are general and vary according to other soil forming factors. One major obstacle in the identification of development in anthropogenic soils is the existence of relict features (ie. features that naturally developed prior to a soil being excavated and deposited as parent material by humans. Of all the soils in the BRW, some are considered too young to exhibit notable development in place. An anthropogenic example is Laguardia, and a naturally formed example is Suncook. Other soils are still considered young yet with an observable amount of *in situ* development (e.g. weak to moderate structure and color). An anthropogenic example is Greenbelt, and a naturally formed example is Charlton.

Human Activity

Humans, inasmuch as they represent biological life, can be considered a part the soil-forming factor *organisms*. Through activities such as plowing or adding soil amendments, humans can mix the soil profile and cycle nutrients (i.e., affect soil forming processes). However, humans can also alter or control soil-forming factors in a more significant manner. They can modify the climate, establish or influence plants and animals, alter the relief, deposit new parent material for soil formation, and interrupt or reset the time of formation. Urban areas represent the realized potential of human influence over soil development. The BRW is such an area with an entire spectrum of soils exhibiting varying degrees of human impact, from negligible to partial to complete.

Infiltration

Infiltration is the process by which water enters the soil. It is a transitional event that only occurs as water enters soil pore spaces at the soil-atmosphere interface (Brady and Weil, 2002). When it rains, soil is capable of acting like a sponge soaking up water from the surface. Once the water has infiltrated it will percolate downward through the soil profile where it will be available for plants and organisms. Some of the water may continue to flow deeper until it reaches groundwater. Any water that does not infiltrate can become runoff. The runoff will flow to a lower elevation in the landscape, or pond if it is already at a low point. Runoff can carry dissolved and suspended materials to surface water. High runoff rates can result in flooding, reduced water quality, and a reduction in evapo-transpiration rates which drives the “urban heat island effect.”

The rainfall rate, surface slope, and surface characteristics are the most critical attributes that influence infiltration. It is logical to assume that a torrential rain will create more runoff than a drizzle, as soils are only capable of infiltrating a specific amount of water in a given time period. In addition, the slope of a given area will also affect the volume of runoff yielded. Rain water has less time to infiltrate on steep slopes before gravity forces it down hill, and an infinite amount of time in flat areas or depressions. Hence, steeply sloping areas will yield more runoff than their flatter counterparts.

As previously mentioned, surface soil characteristics will also dictate infiltrability. Decisive attributes include: land cover, surface texture, initial moisture content, soil structure, organic matter content and surface compaction. The abundance of vegetation plays a major role in decreasing the velocity of the rain drops as they hit the ground. Areas that have copious amounts of vegetation are capable of slowing down the raindrops so that the water has a greater chance of infiltrating the surface before it flows to a lower point in the landscape.

A soil’s surface texture is an indicator of the diameter of its pores, therefore is an indirect clue to the rate at which surface water will infiltrate. Soils that have greater amounts of clay (particles that are less than 2 microns in diameter) have tiny pore spaces, compared to soils with more sand (particles ranging from 2mm-0.05 mm in diameter). Water adheres more tightly to the surfaces of soil particles in fine pores than in large ones. Hence, sandy soils infiltrate water at a faster rate than clayey soils because water is able to flow faster through large pores, especially those connected to the soil surface. This is also the reason why sandy soils are so drought prone. It is also important to note that any soil has finite amount of pore space. The initial moisture content will dictate the amount of water that a soil is capable of storing at a specific point in time. A soil that is near its saturation point will have a much lower infiltrability than one that is dry.

Lastly, soils with good aggregate stability allow for more rapid infiltration. Stable soil structural units are directly related to the organic matter content. Organic matter is the most active portion of the soil. Making up less then five percent of an average agricultural soil, it gives a soil dark brown or blackish color. Organic matter acts like a super glue holding soil particles together and is also capable of holding up to twenty times its weight in water (Grunwald, 1998). Unstable structural units will breakdown easily upon being wetted; they will collapse under their own weight compressing the soil’s pores. Soils with increased organic matter are capable of retaining both their original structure, and the functionality of their macropores. Thus, soils with greater amounts of organic matter will generally have higher infiltration rates and an increased water holding capacity (Brady and Weil, 2002).

Soil compaction can be described as an increase in soil density as the result of an applied load or pressure. Soils can be compacted deliberately to increase soil strength during construction activities, or unintentionally by foot and vehicular traffic. Compaction can slow or restrict water entry into soil by reducing the volume and continuity of the larger pores. In general, a wet soil has less resistance to compaction than a dry soil.

The USDA has used physical soil properties such as particle-size class, structure, and consistence to estimate soil permeability. These estimates work well on undisturbed or agricultural soils, but little research has been done to determine how accurate these approximations are at capturing the actual permeability of anthropogenically disturbed soils. This immense void of information drove our research study as New York City officials are currently seeking new and innovative ways to manage storm water runoff. The infiltrability of several soils in the Bronx River Watershed will be addressed later in the manuscript.

Bronx River Watershed Infiltration Study

New York City has limited land available to infiltrate storm water. Areas that once contained native forests and wetlands have been displaced by streets, high rises, and parking lots. As the city became increasingly urban, green spaces available to infiltrate storm water shrunk even further, leaving many areas in the urban core with less than 10% open space. As a result of this intense development, the city needed a way to remove storm water runoff from the land. The creation of storm sewers was the answer.

Storm sewers have provided an efficient (although not always ecologically friendly) way of rapidly removing water from impervious areas of pavement and buildings. Unfortunately, the city's aging storm water infrastructure is incapable of treating both storm water and sewage during storm events. When the capacity of a sewage treatment plant is exceeded, raw sewage and storm water are discharged into the water bodies surrounding the city via combined sewer overflows (CSOs). These discharges contain a wide array of contaminants such as fertilizers and pesticides from landscaping, oil and grease from automobiles, and chemicals from industrial areas. CSOs are one of the biggest pollution problems facing New York City today and prevent many of the waterways, including the Bronx River, from meeting recreational water quality standards (PlaNYC Sustainable Stormwater Management Plan, 2008).

In order to stop the combined sewage outflows from spilling storm water runoff and sewage into the City's waterways, storm water must be handled independently from sewage. Although this sounds like a simple solution, it requires a comprehensive overhaul of New York City's current sewer infrastructure. The easier solution is to try and manage more storm water runoff before it has the chance to be intercepted by the sewer system. If the City's urban soil resource can be utilized to treat the storm water on the land, less will be discharged directly into the waterways. In order to capitalize on the infiltrability of the soil that remains in NYC, it is imperative to first establish a baseline infiltration rate for different soil types and land uses in the City. Once general infiltration rates have been determined, areas that are best suited for infiltration can be identified. Green spaces with poor infiltration can be reworked to maximize their ability to infiltrate runoff.

The findings of our study are general, but our initial results show that the infiltration rates of soils in the Bronx River Watershed range from 0 in/hr to 9.45 in/hr. The results are quite intuitive, land use management is paramount to the physical properties of a given soil when one is considering a soil's infiltrability. Soils with the greatest infiltration rates were generally found in the areas that were least disturbed. Soils in heavily trafficked or highly disturbed areas showed the slowest infiltration rates. The data from this study influenced the permeability rates and Hydrologic Soil Groups assigned to these soils, and emphasized the effects of land use on soil properties. The study will continue to measure soil infiltrability as the remainder of the City's soils are mapped.

The Cornell Sprinkle Infiltrometer (Figures 4.1 and 4.2) was used to determine a realistic value of soil infiltrability on a wide array of urban soils. The Cornell Sprinkle Infiltrometer consists of a portable rainfall simulator that is placed onto a single infiltration ring (9 ½'' diameter) and allows for the application of rainfall at a wide range of predetermined rates. The infiltrometer permits the determination of several important soil hydrological properties: Time-to-run-off, sorptivity, and field-saturated infiltrability (Van Es and Schindelbeck, 2002).

Unlike measurements for saturated hydraulic conductivity (Ksat), the infiltrometer does not allow for hydraulic head to build up or be maintained. Water that ponds on the soil surface is promptly siphoned off and measured via the overflow tube. The infiltrometer wets the soil in a more natural matter which eliminates soil slaking (or the immediate disintegration of soil aggregates when they are abruptly immersed in water). It also provides a realistic surface boundary condition (Van Es and Schindelbeck, 2002). The infiltrometer captures a true field measurement of a soils in situ ability to soak up water.

The sites selected to participate in the study were chosen because they exemplified a typical range for their particular series. The current land use of the sites was also considered, as our goal was to gain a better understanding how urban soils act under different management conditions. It is also important to note that each trial was performed in area with zero to one percent slope. The Cornell Sprinkle Infiltrometer is unable to measure infiltration on steeper slopes because the water height (or hydraulic head) in the tank would vary from one end to the other. This would create a gradient within the tank which would inhibit water flowing from the capillary tubes at a consistent rate. However, had trials been performed on greater slopes, the infiltration rates would have been lower (water moving downhill will be moving with greater velocity and have less time to infiltrate).

During the trials, the metal ring was hammered into a level soil surface to a depth of three inches. The infiltrometer was filled with approximately five gallons of water, and the trial commenced. A rainfall rate between 0.4 and 0.5 cm/min (9-12 inches/ hr) was maintained for approximately one hour. Rainfall rate and runoff measurements were taken every three minutes. In order to standardize the trials, the average of the last five infiltration measurements was taken as the measured infiltration rate. Waiting until the end of the trial provides the best measurement of the steady-state infiltration rate. If the rainfall rate significantly dropped at the end of the test period, the last five measurements with consistent rainfall rates were used.

The study examined both natural and anthropogenic soil on various urban land uses to see the effect that urbanization has on infiltration rates. Our sample set consisted of nine soil series (5 natural and 4 anthropogenic), on five different land uses. Sites in the Bronx included city parks (Bronx Park East and Soundview Park), highway buffers (Pelham Parkway and Bronx River Parkway), wooded natural areas (Botanical Garden Native Forest and Bronx River floodplain), residential (garden, backyard, treepit, and courtyard), and industrial sites (Sims Hugo Neu Recycling plant). Table 4.1 below lists all the site details.

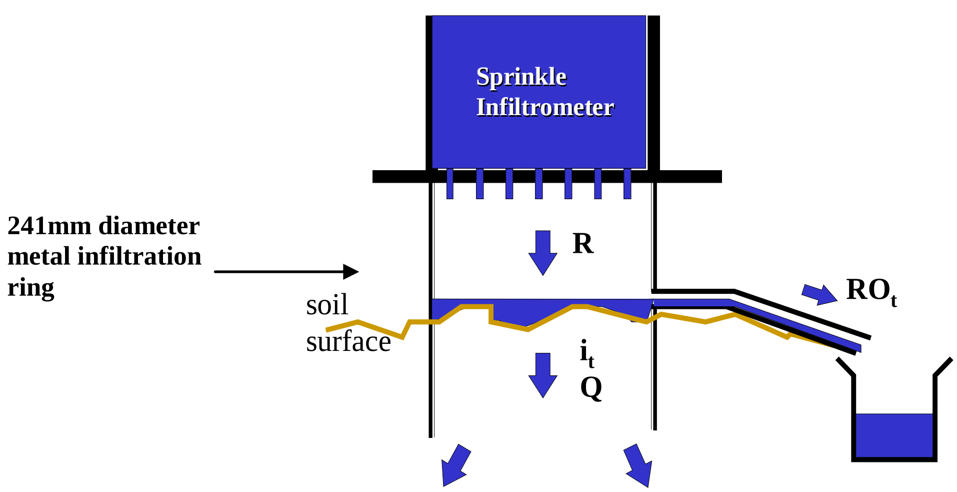


Figure 4.1. Cornell Sprinkle Infiltrometer (Van Es and Schindelbeck 2002)

Figure 4.2. Infiltration Equipment (Left to Right): Graduated cylinder, overflow collection tubs, overflow tube, metal ring, and infiltrometer.

Table 4.1. Summary of Infiltration Sites

Site #	Location	Land use	Series	Parent Material
1	Bronx River Parkway	Highway Buffer	Greenbelt	Anthropogenic
*2	Pelham Parkway	Highway Buffer	Centralpark	Anthropogenic
*3	Pelham Parkway	Highway Buffer	Tonawanda	Natural
*4	New York Botanical Garden	Native Forest	Charlton	Natural
5	New York Botanical Garden	Native Forest	Chatfield	Natural
6	Bronx Blvd and 216th St	City Park (high use)	Greenbelt	Anthropogenic
7	Bronx River Parkway	Highway Buffer	Suncook	Natural
*8	Bronx River Forest	Floodplain	Suncook	Natural
*9	Bronx River Forest	Floodplain	Olinville	Anthropogenic
10	Bronx River Forest	Floodplain	Olinville	Anthropogenic
11	Sims Hugo Neu	Industrial	Laguardia	Anthropogenic
12	Bronx Park East and Waring	City Park (high use)	Hollis	Natural
13	Soundview Park	City Park (low use)	Laguardia	Anthropogenic
14	Soundview Park	City Park (high use)	Laguardia	Anthropogenic
15	Soundview Park	City Park (high use)	Laguardia	Anthropogenic
16	Soundview Park	City Park (low use)	Laguardia	Anthropogenic
17	YMPJ House	Residential (Garden)	Greenbelt	Anthropogenic
18	1384 Stratford Avenue	Residential (Backyard)	Centralpark	Anthropogenic
19	Tree Pit1385 Stratford Ave	Residential (Treepit)	Greenbelt	Anthropogenic
*20	NYCHA	Residential (Courtyard)	Greenbelt	Anthropogenic

* Indicates sites where duplicate trials were performed.

Table 4.2 shows the complete set of data for the infiltration study. Permeability classes were used instead of Saturated Hydraulic conductivity (Ksat), because we measured the actual rate of infiltration. Even though Ksat is often shown having the same units as permeability it is not in fact a rate. The results, as follows, are ranked from the highest average infiltration rate to the lowest average rate.

Table 4.2. Infiltration Study Data Summary

Site Location	Soil Series	Particle-Size Class	Landuse	Avg Infil Rate (in/hr)
1384 Stratford Ave	Centralpark	Loamy-skeletal	Residential	0.00
1384 Stratford-Tree Pit	Greenbelt	Coarse-loamy	Residential	0.00
Sims Hugo Neu	Laguardia	Loamy-skeletal	Industrial	0.00
Bronx River Parkway	Greenbelt	Coarse-loamy	Highway Buffer	0.07
Pelham Parkway	Tonawanda	Coarse-silty	Highway Buffer	0.12
Soundview Park	Laguardia	Loamy-skeletal	City Park (high use)	0.24
Pelham Parkway	Central Park	Loamy-skeletal	Highway Buffer	0.24
Pelham Parkway	Central Park	Loamy-skeletal	Highway Buffer	0.47
Bronx Park E +216th	Greenbelt	Coarse-loamy	City Park	0.71
Pelham Parkway	Tonawanda	Coarse-silty	Highway Buffer	1.18
Pelham Parkway	Central Park	Loamy-skeletal	Highway Buffer	1.18
NYBG	Charlton	Coarse-loamy	Native Forest	1.42
Bronx River Forest	Suncook	Sandy	Floodplain	1.89
Pelham Parkway	Central Park	Loamy-skeletal	Highway Buffer	2.13
NYCHA	Greenbelt	Coarse-loamy	Residential	2.36
NYCHA	Greenbelt	Coarse-loamy	Residential	2.60
Bronx River Forest	Suncook	Sandy	Floodplain	3.07
Bronx River Forest	Olinville	Coarse-loamy	Floodplain	3.07
Bronx Park E +216th	Greenbelt	Coarse-loamy	City Park	3.78
Bronx Park E + Waring	Hollis	Coarse-loamy	City Park	4.49
NYBG	Chatfield	Coarse-loamy	Native Forest	6.14
Youth Ministries	Greenbelt	Coarse-loamy	Garden	6.38
NYBG	Charlton	Coarse-loamy	Native Forest	6.61
Soundview Park	Laguardia	Loamy-skeletal	City Park (high use)	6.85
Bronx River Forest	Olinville	Coarse-loamy	Floodplain	7.32
BR Parkway + 241st	Suncook	Sandy	Highway Buffer	7.80
Soundview Park	Laguardia	Loamy-skeletal	City Park (low use)	8.27
Soundview Park	Laguardia	Loamy-skeletal	City Park (low use)	9.45

Drawing many conclusions from the data is difficult. More trial runs are needed, and additional data such as bulk density, organic matter content, particle size distribution, and moisture content should be collected. However, these preliminary results show that land use, which is an indirect indication of the degree of compaction and possibly the amount of organic matter in the surface, has the greatest impact upon infiltration (Table 4.3). Compaction reduces soil pore space, particularly the macropores, which provide the basis for rapid water movement in soils. Our sample site at Sims Hugo Neu (an industrial recycling facility) is the quintessential example, allowing no water to infiltrate its concrete-like surface.

A second critical component is the soil's particle-size class. Coarser textured soils have larger pores which conduct water through the profile faster than small pores. As noted above one of the fastest infiltration rates was measured on a Suncook, a sandy alluvial soil with minimal compaction. The second slowest rate was measured on a Tonawanda, a coarse-silty textured soil that had a horizon with a higher clay content just below the surface.

Table 4.3. Summary of Infiltrability by Land use

Land Use	Avg Infiltration (in/hr)
City Park (low use)	8.86
Native Forest	4.72
Flood Plain	3.84
City Park (high use)	3.21
Residential	2.27
Highway Buffer	1.65
Industrial	0.00

Figure 4.3. Soil scientists (Lindsay Reinhardt and Imad Harone) measuring infiltration along the Bronx River

As we continue to map the soils of New York City we will perform additional infiltration trials. Duplicate trials need to be performed at each site to account for soil variability. In the future, we hope to take additional quantitative measurements such as bulk density, initial moisture content, particle size distribution, and organic matter content. With additional data collection, we will be to determine how closely these other factors correlate with each other. This will yield a better comprehension of what dictates infiltration rates in urban soils as well as a better understanding of urban hydrology.

Ground Penetrating Radar

Soil scientists used ground penetrating radar (GPR) in the Soil Survey of Bronx River Watershed to assess subsurface soil properties and site conditions. GPR is an impulse radar system designed for relatively shallow investigations (Doolittle, 1987). Radar operates by radiating short pulses of high frequency, electromagnetic energy into the ground from a transmitting antenna. As the pulse penetrates materials with different electromagnetic properties, a portion of the pulse's energy is reflected back to the antenna. By moving an antenna along the soil surface, GPR can provide a continuous profile of the subsurface without disturbing the surface.

Terra Subsurface Interface Radar (SIR) SYSTEM-2 was utilized for most of the surveys but a few of the later surveys where conducted utilizing a SIR SYSTEM-3000. This GPR unit is manufactured by Geophysical Survey Systems, Inc (GSSI). The 200 and 400 MHz antennas were used during field exercises. All records were processed with the RADAN for Windows (version 3.0) software program (GSSI). Processing included setting the color transformation, position correction, marker editing, distance normalization, and range gain adjustments. GPR and other geophysical tools are noninvasive allowing for subsurface surveys in sensitive areas like urban environments; where digging many soils pits in not practical or permissible. Figure 5.1 shows a processed GPR image. The thick white band of color below the surface is the bedrock profile. The electromagnetic energy is not able to penetrate the bedrock. Instead it reflects back to the antenna.

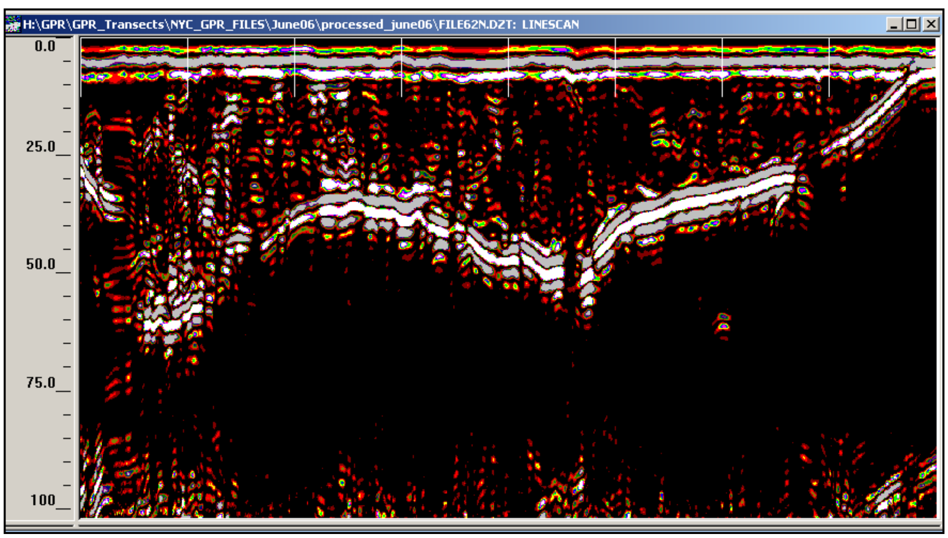


Figure 5.1. NYBG, Azalea Way - Depth to bedrock; Ground Penetrating Radar Profile

Advantages of GPR include continuous spatial coverage, speed of operation, flexible observation depth, moderate to high resolution of subsurface features, and greater confidence in site assessments. Results from GPR surveys can be interpretable in the field for immediate results or processed with software in the office for more detailed analysis. This technology can provide, in a relatively short time, the large number of observations needed for site characterization and resource assessments.

In 2006 several GPR surveys were conducted in the Bronx River Watershed. These surveys were performed in the New York Botanical Garden and Bronx Park East. Because the Botanical Garden is so intensely managed, depth to bedrock is a critical issue for planting purposes. Using the GPR to transect various landscape positions we were able to develop a better understanding of the true bedrock composition with minimal disturbance of the soil. For the study, areas were selected based on landscape position, slope class and degree of anthropogenic disturbance. Over eighty transects were performed and small holes were dug or augered along the transects to confirm bedrock depths measured by the antenna. Our results were used to design the map units and calculate map unit compositions.

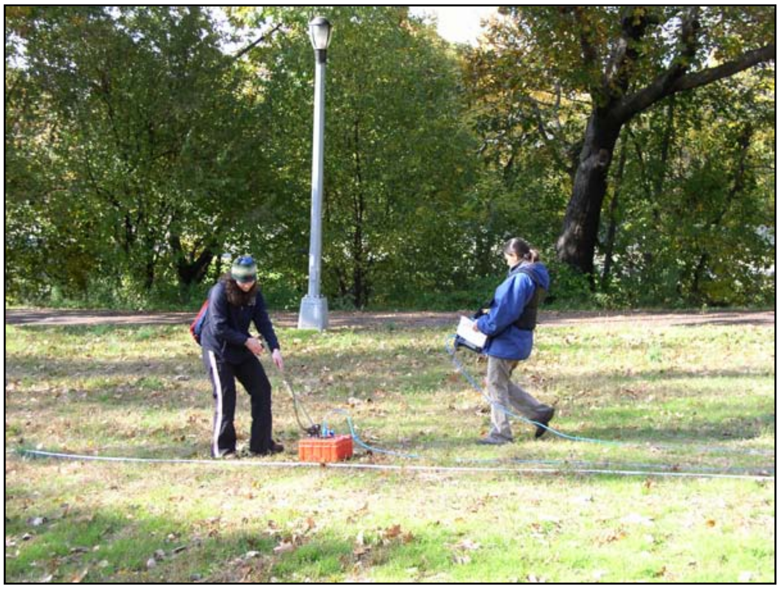


Figure 5.2. Soil scientists (Lindsay Reinhardt and Olga Vargas) utilize the 400MHz Antenna in Bronx Park East.

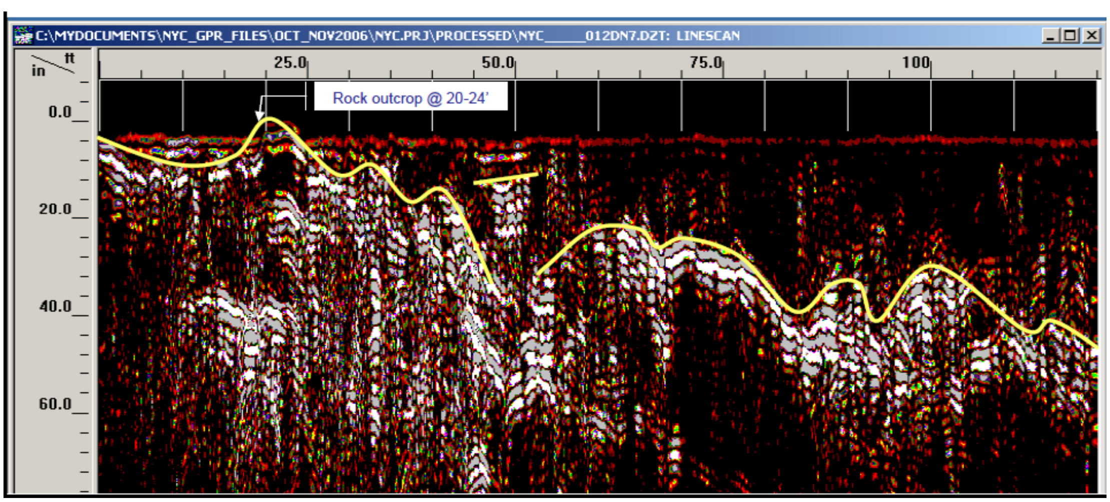


Figure 5.3. Bronx Park - Depth to Bedrock; Ground Penetrating Radar Survey

The results of the study conclude that the depths to bedrock throughout the Bronx Watershed are highly variable. The bedrock controlled map units are all complexes (a mixture or 2 or more dissimilar soils) because of this natural variability. Bedrock may appear on the surface and dip deep below the earth within a few feet of the outcrop. The soils in the garden are mostly moderately deep and steeper slopes tend to have shallower soils.

Our use of GPR significantly improved the quality of soil mapping in the Botanical Garden. A soil survey of the NY Botanical Garden Hemlock Forest was conducted in 1974. This survey mapped Hollis consociations as the sole map unit type in the Forest. Hollis is a natural soil formed in till with less than 20 inches of soil over bedrock. Figure 5.4 below compares the level of detail captured by these two maps. The older map was unable to portray the true variability of bedrock depths in the Botanical Garden. All soils were mapped as shallow. Our modern map captures this variability with soils being mapped as deep, moderately deep and shallow to bedrock. Areas in white include organic soils, anthropogenically disturbed soils and soils in depressions. The use of GPR for the Bronx Watershed survey provided a more accurate representation of the gamut of soils in the Forest.

1974 Survey **2006 Survey**

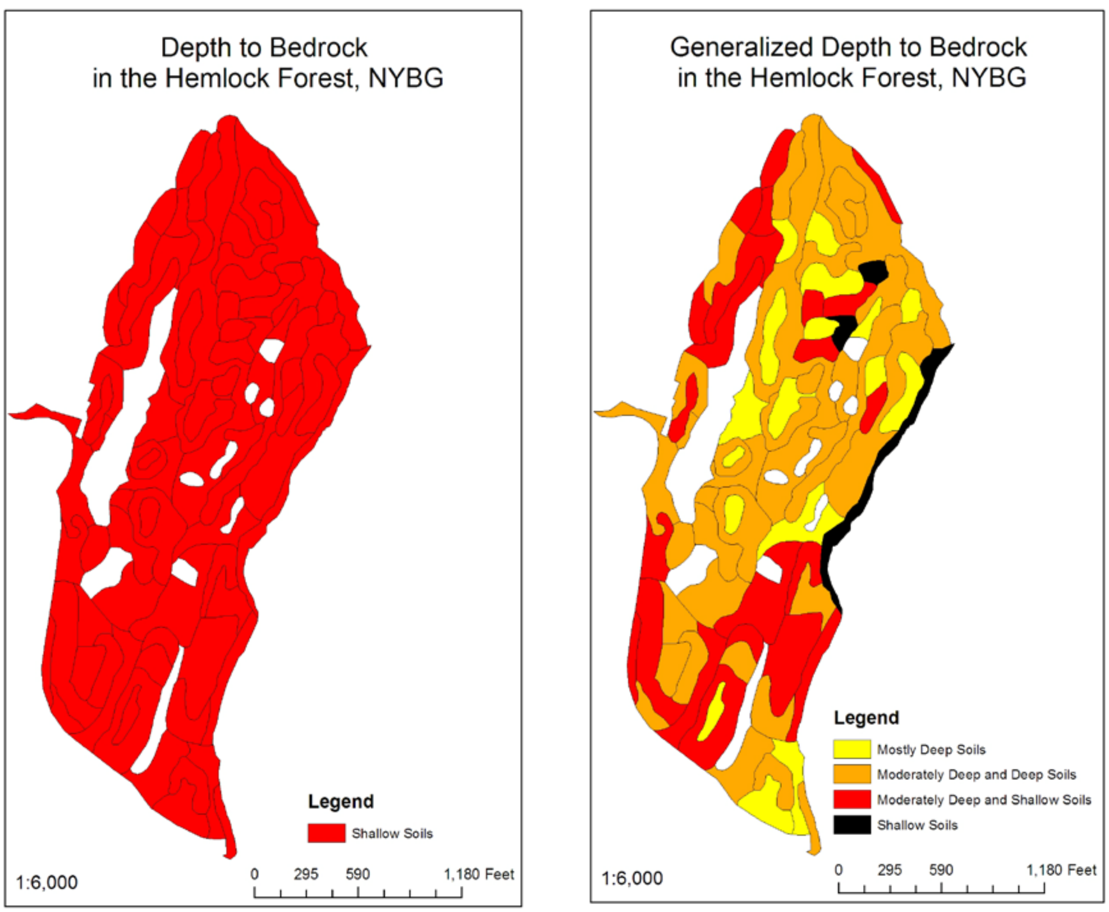


Figure 5.4. A comparison of the old mapping and the modern Bronx Watershed Survey

Detailed Soil Map Units

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

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

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

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

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

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

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

Map units dominated by a single component are called *consociations*. Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Chatfield-Hollis-Rock outcrop complex, 15 to 25 percent slopes is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pavement & buildings is an example.

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

Soil Descriptions

1A. Canandaigua-Tonawanda complex, 0 to 3 percent slopes (photo). This map unit consists of nearly level, poorly drained Canandaigua and somewhat poorly drained Tonawanda soils. These soils have formed in silty deposits in depressions on till plains. Units of Canandaigua and Tonawanda occur together in such an intricate pattern on the landscape that separating them was not practical. This unit is predominately found in the New York Botanical Garden “Native Forest.”

A typical area of this unit is about 65 percent Canandaigua soils and 20 percent Tonawanda soils. Included with this unit in mapping are small areas of very poorly drained Canandaigua soils, Aquic Dystrudepts (moderately well drained till soils) and Charlton soils. Included areas make up about 15 percent of the mapped acreage. Aquic Dystrudepts and Charlton inclusions can be found in the transition zone grading from the upland to the depression or areas between depressions where the slope is convex. Very poorly drained Canandaigua soils may be found in the deepest areas of the depressions.

2A. Centralpark sandy loam, 0 to 3 percent slopes. This map unit consists of nearly level, well drained Centralpark soils. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development. This unit is predominantly found in city parks and green spaces along the Bronx River and Pelham Parkways.

A typical area of this unit is about 85 percent Centralpark soils. Included with this unit in mapping are areas of Greenbelt soils, Oxyaquic Dystrudepts (moderately well drained coarse-loamy fill soils), Dystric Eutrudepts (well drained coarse-loamy fill soils with greater than 10 percent artifacts), Laguardia soils, and Typic Udorthents (somewhat excessively drained sandy fill soils). Included areas make up 15 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

3B. Centralpark sandy loam, 3 to 8 percent slopes. This map unit consists of gently sloping, well drained Centralpark soils. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development. This unit is predominantly found in city parks and green spaces along the Bronx River and Pelham Parkways.

A typical area of this unit is about 85 percent Centralpark soils. Included with this soil in mapping are areas of Greenbelt soils, Oxyaquic Dystrudepts (moderately well drained coarse-loamy fill soils), Dystric Eutrudepts (well drained coarse-loamy fill soils with greater than 10 percent artifacts), Laguardia soils, and Typic Udorthents (somewhat excessively drained sandy fill soils). Included areas make up 15 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

4F. Centralpark gravelly sandy loam, 35 to 60 percent slopes. This map unit consists of steep, well drained Centralpark soils. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development. This unit is most commonly found in embankments along the Bronx River Parkway.

A typical area of this unit is about 78 percent Centralpark soils. Included with this unit in mapping are areas of Greenbelt soils, Laguardia soils, and Dystric Eutrudepts (well drained coarse-loamy fill soils with greater than 10 percent artifacts). Included areas make up about 22 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

5D. Centralpark-Greenbelt complex, 15 to 25 percent slopes. This map unit consists of moderately steep, well drained Centralpark and Greenbelt soils so intermingled that it was not practical to map them separately. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials as well. This complex is predominantly found in city parks and green spaces along the Bronx River Parkway.

A typical area of this complex is about 60 percent Centralpark soils and 30 percent Greenbelt soils. Included with these soils in mapping are areas of Laguardia soils and Dystric Eutrudepts (well drained coarse-loamy fill soils with greater than 10 percent artifacts). Included areas make up about 10 percent of the map unit. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

6A. Centralpark-Greenbelt-Rock outcrop complex, 0 to 3 percent slopes (photo). This map unit consists of nearly level, well drained Centralpark soils, Greenbelt soils and areas of Rock outcrop, dominantly gneiss and schist. These soils were so intermingled that it was not practical to map them separately. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development. Greenbelt soils have formed in a thick

mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials as well. This complex is predominantly found in the Bronx Zoo and in Bronx Park East by Allerton Avenue.

A typical area of this complex is about 55 percent Centralpark soils, 23 percent Greenbelt soils and 15 percent Rock outcrop. Included with this unit in mapping are areas of Chatfield soils, Hollis soils, and Oxyaquic Dystrudepts (moderately well drained coarse-loamy fill soils with less than 10 percent artifacts). Included areas make up about 7 percent of the mapped acreage. Oxyaquic Dystrudepts are found in areas where water is converging. However, as fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

7B. Centralpark-Greenbelt-Rock outcrop complex, 3 to 8 percent slopes. This map unit consists of moderately sloping, well drained Centralpark soils, Greenbelt soils and areas of Rock outcrop, dominantly gneiss and schist. These soils were so intermingled that it was not practical to map them separately. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials as well. This complex is predominantly found in Bronx Park East by Allerton Avenue.

A typical area of this complex is about 55 percent Centralpark soils, 23 percent Greenbelt soils and 15 percent Rock outcrop. Included with this unit in mapping are areas of Chatfield soils, Hollis soils and Oxyaquic Dystrudepts (moderately well drained coarse-loamy fill soils with less than 10 percent artifacts). Included areas make up about 7 percent of the mapped acreage. Oxyaquic Dystrudepts are can be found in areas where water is converging. However, as fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

8C. Centralpark-Greenbelt-Rock outcrop complex, 8 to 15 percent slopes. This map unit consists of moderately sloping, well drained Centralpark soils, Greenbelt soils and areas of Rock outcrop, dominantly gneiss and schist. These soils were so intermingled that it was not practical to map them separately. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials as well. This complex is predominantly found in Bronx Park East by Allerton Avenue.

A typical area of this unit is about 55 percent Centralpark soils, 25 percent Greenbelt soils, and 15 percent Rock outcrop. Included with this unit in mapping are areas of Chatfield soils and Hollis soils. Included areas make up about 5 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

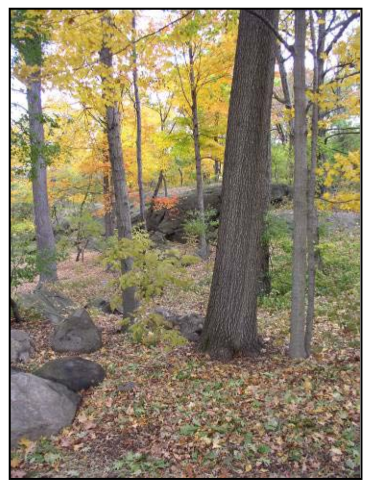
9D. Centralpark-Greenbelt-Rock outcrop complex, 15 to 25 percent slopes (photo). This map unit consists of moderately steep, well drained Centralpark soils, Greenbelt soils and areas of Rock outcrop, dominantly gneiss and schist. These soils were so intermingled that it was not practical to map them separately. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials. This complex is predominantly found in Bronx Park East by Allerton Avenue.

A typical area of this unit is about 55 percent Centralpark soils, 25 percent Greenbelt soils and 15 percent Rock outcrop. Included with this unit in mapping are areas of Chatfield soils and Hollis soils. Included areas make up about 5 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

10D. Charlton loam, 15 to 25 percent slopes. This map unit consists of moderately steep, well drained Charlton soils. These very deep to bedrock soils derived from gneiss and schist, form on hilltops and hillsides on till plains. This unit is found in undisturbed areas of city parks, the Bronx River Parkway, the New York Botanical Garden and the Bronx Zoo.

A typical area of this unit is about 85 percent Charlton soils. Included with this unit in mapping are areas of Chatfield soils, Oxyaquic Dystrudepts (dense basal till soils) and Greenbelt soils. Included areas make up about 15 percent of the mapped acreage. Chatfield soils are commonly found adjacent to Rock outcrops, which are mainly at the summits of hills and ridges. Greenbelt soils may be found in areas adjacent to foot paths, buildings or in planting beds.

11C. Charlton-Chatfield complex, 8 to 15 percent slopes, rocky. This map unit consists of moderately sloping, very deep, well drained Charlton soils and moderately deep well drained Chatfield soils. These soils were so intermingled that it was not practical to map them separately. This unit is found on hilltops and hillsides on till plains derived from gneiss and schist where the bedrock may be near the surface. This unit is found in the undisturbed areas of the New York Botanical Garden and the Bronx Zoo.

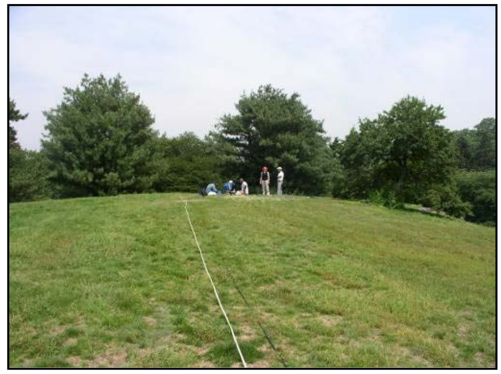


A typical area of this unit is about 50 percent Charlton soils and 40 percent Chatfield soils. Included with these soils in mapping are areas of Hollis soils and Rock outcrop. Hollis soils are commonly found adjacent to Rock outcrops, which are mainly at the summits of hills and ridges. Included areas make up about 10 percent of the mapped acreage.

12C. Charlton-Chatfield-Rock outcrop complex, 8 to 15 percent slopes (photo). This map unit consists of moderately sloping soils on till plains where the underlying gneiss and schist bedrock is near the surface. The well drained, very deep Charlton soils, well drained, moderately deep Chatfield soils and areas of Rock outcrop were so intermingled that it was not practical to map them separately. This unit is found in undisturbed areas of the New York Botanical Garden and the Bronx Zoo.

A typical area of this unit is about 43 percent Charlton soils, 38 percent Chatfield soils and 18 percent Rock outcrop. Included with these soils in mapping are areas of Hollis soils. Included areas make up about 1 percent of the mapped acreage.
Hollis soils are commonly found adjacent to Rock outcrops, which are mainly at the summits of hills and ridges.

13C. Chatfield-Greenbelt-Hollis complex, 8 to 15 percent slopes, very rocky, recreational parkland phase (photo). This map unit consists of moderately sloping soils on anthropogenically disturbed till plains where the underlying gneiss and schist bedrock may be near the surface. The well drained, moderately deep Chatfield soils, well drained, very deep Greenbelt soils and well drained, shallow Hollis soils were so intermingled that it was not practical to map them separately. Due to use and management, Chatfield and Hollis soils in recreational parkland generally have a higher bulk density in the surface than the same soils in wooded areas, resulting in a lower surface permeability. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. Greenbelt soils are typically found adjacent to paths, buildings or in heavily landscaped areas. There is usually no geomorphic indication that the soil type has changed. This unit is found in disturbed areas of the New York Botanical Garden, Bronx Park East and Crotona Park.



A typical area of this unit is about 61 percent Chatfield soils, 22 percent Greenbelt soils and 15 percent Hollis soils. Included with these soils in mapping are areas of Rock outcrop, predominately gneiss and schist. Included areas make up about 2 percent of the mapped acreage. Rock outcrops are commonly found on the summits of hills and ridges.

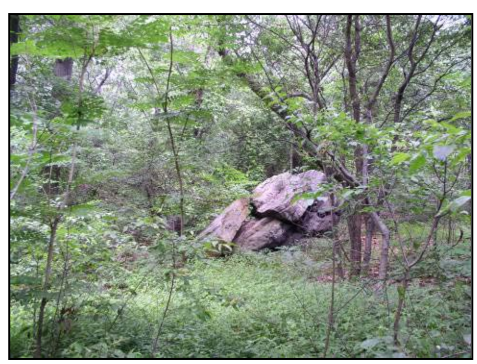
14D. Chatfield-Charlton complex, 15 to 25 percent slopes, very rocky. This map unit consists of moderately steeply sloping soils on till plains where the underlying gneiss and schist bedrock may be near the surface. The well drained, moderately deep Chatfield soils and well drained, very deep Charlton soils were so intermingled that it was not practical to map them separately. This unit is commonly found in the undisturbed areas of the New York Botanical Garden and the Bronx Zoo.

A typical area of this unit is about 56 percent Chatfield soils and 34 percent Charlton soils. Included with these soils in mapping are areas of Hollis soils and Rock outcrop. Included areas make up about 10 percent of the mapped acreage. Hollis soils are commonly found adjacent to Rock outcrops, which are mainly at the summits of hills and ridges.

15E. Chatfield-Charlton complex, 25 to 35 percent slopes, very rocky. This map unit consists of steeply sloping soils on till plains where the underlying gneiss and schist bedrock may be near the surface. The well drained, moderately deep Chatfield soils and well drained, very deep Charlton soils were so intermingled that it was not practical to map them separately. This unit is commonly found in the undisturbed areas of the New York Botanical Garden and the Bronx Zoo.

A typical area of this unit is about 55 percent Chatfield soils and 31 percent Charlton soils. Included with these soils in mapping are areas of Hollis and Rock outcrop. Included areas make up about 14 percent of the mapped acreage. Hollis soils are commonly found adjacent to Rock outcrops, which are mainly at the summits of hills and ridges.

16B. Chatfield-Charlton-Hollis complex, 0 to 8 percent slopes, very rocky (photo). This map unit consists of gently to moderately sloping soils on till plains where the underlying gneiss and schist bedrock may be near the surface. The moderately deep, well drained Chatfield soils, very deep, well drained Charlton soils and shallow, well drained Hollis soils were so intermingled that it was not practical to map them separately. This unit is found in the undisturbed areas of the New York Botanical Garden and the Bronx Zoo.



A typical area of this unit is about 45 percent

Chatfield soils, 28 percent Charlton soils and 24 percent Hollis soils. Included with these soils in mapping are areas of Tonawanda soils and Rock outcrop. Tonawanda soils are found in small upland depressions. Rock outcrops can be found on the summits of hills and ridges. Included areas make up about 3 percent of the mapped acreage.

17B. Chatfield-Hollis-Rock outcrop-Charlton complex, 0 to 8 percent slopes. This map unit consists of gently to moderately sloping soils on till plains where the underlying gneiss and schist bedrock is near the surface. The well drained, moderately deep Chatfield soils, well drained, shallow Hollis soils, Rock outcrop and well drained, very deep Charlton soils, were so intermingled that it was not practical to map them separately. This unit is mapped in undisturbed areas of the New York Botanical Garden and the Bronx Zoo.

A typical area of this unit is about 38 percent Chatfield soils, 27 percent Hollis soils and 19 percent Rock outcrop, and 15 percent Charlton soils. Included with these soils in mapping are areas of Tonawanda soils, found in small upland depressions. Included areas make up about 1 percent of the mapped acreage.

18C. Chatfield-Greenbelt-Rock outcrop complex, 8 to 15 percent slopes, recreational parkland phase (photo). This map unit consists of moderately sloping soils on anthropogenically disturbed till plains where the underlying gneiss and schist bedrock is near the surface. The well drained, moderately deep Chatfield soils, well drained, very deep Greenbelt soils and areas of Rock outcrop were so intermingled that it was not practical to map them separately. Due to use and management, Chatfield soils in recreational parkland generally have a higher bulk density in the surface than the same soils in wooded areas, resulting in a lower surface permeability. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. Greenbelt soils may be found in areas adjacent to foot paths, buildings or in planting beds. This map unit is found in Crotona Park, Bronx Park East, the Bronx Zoo and the New York Botanical Garden.

A typical area of this unit is about 45 percent Chatfield soils, 40 percent Greenbelt soils and 13 percent Rock outcrop. Included with these soils in mapping are areas of Hollis soils. Hollis soils are commonly found adjacent to rock outcrops, which are mainly at the summits of hills and ridges. Included areas make up about 2 percent of the mapped acreage.

19B. Chatfield-Hollis-Greenbelt complex, 0 to 8 percent slopes, rocky, recreational parkland phase. This map unit consists of nearly level to moderately sloping soils on anthropogenically disturbed till plains where the underlying gneiss and schist bedrock may be near the surface. The well drained, moderately deep, Chatfield soils, shallow, well drained Hollis soils, and very deep, well drained Greenbelt soils were so intermingled that it was not practical to map them separately. Due to use and management, Chatfield and Hollis soils in recreational parkland generally have a higher bulk density in the surface than the same soils in wooded areas, resulting in a lower surface permeability. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. Greenbelt soils may be found in areas adjacent to foot paths, buildings or in planting beds. This unit is found in the green space adjacent to the Bronx River Parkway, the Bronx Botanical Garden and the Bronx Zoo.

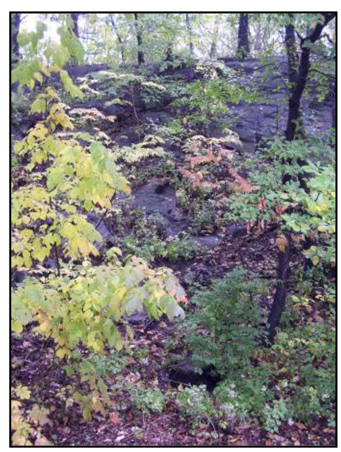
A typical area of this unit is about 66 percent Chatfield soils, 19 percent Hollis soils and 13 percent Greenbelt soils. Included in this map unit are areas of Oxyaquic Dystrudepts (moderately well drained soils formed in a thick mantle of clean loamy fill) and Rock outcrop. Included areas make up about 2 percent of the mapped acreage. Oxyaquic Dystrudepts may be found along foot paths, buildings or planting beds where water is converging.

20B. Chatfield-Hollis-Rock outcrop complex, 0 to 8 percent slopes, recreational parkland phase (photo). This map unit consists of nearly level to moderately sloping soils on anthropogenically disturbed till plains where the underlying gneiss and schist bedrock are near the surface. Soils in this unit include moderately deep, well drained Chatfield soils, shallow, well drained Hollis soils, and areas of Rock outcrop, dominantly gneiss and schist. These soils were so intermingled it was not practical to map them separately. Due to use and management, Chatfield and Hollis soils in recreational parkland generally have a higher bulk density in the surface than the same soils in wooded areas, resulting in a lower surface permeability. This unit is mapped in Bronx Park East, the Bronx Zoo and Crotona Park.

A typical area of this map unit is about 52 percent Chatfield soils, 28 percent Hollis soils, and 16 percent Rock outcrop. Included with these soils in mapping are areas of Greenbelt soils and Oxyaquic Dystrudepts (moderately well drained soils formed in a thick mantle of clean loamy fill). Included areas make up about 4 percent of the mapped acreage. Greenbelt soils may be found in areas adjacent to foot paths, buildings or in planting beds. Oxyaquic Dystrudepts are also found along foot paths, buildings or planting beds where water is converging. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

21D. Chatfield-Hollis-Rock outcrop complex, 15 to 25 percent slopes. This map unit consists of moderately steep soils on till plains where the underlying gneiss and schist bedrock are near the surface. Soils in this unit include moderately deep, well drained Chatfield soils, shallow, well drained Hollis soils, and areas of Rock outcrop, dominantly gneiss and schist. These soils were so intermingled it was not practical to map them separately. This unit is found in the undisturbed areas of the New York Botanical Garden, the Bronx Zoo, and Crotona Park.

A typical area of this map unit is about 55 percent Chatfield soils, 23 percent Hollis soils and 16 percent Rock outcrop. Included with these soils in mapping are areas of Charlton soils. Included areas make up about 7 percent of the mapped acreage.



22F. Chatfield-Hollis-Rock outcrop complex, 35 to 60 percent slopes (photo). This map unit consists of very steeply sloping soils on till plains where the underlying gneiss and schist bedrock are near the surface. Soils in this unit include moderately deep, well drained Chatfield soils, shallow, well drained Hollis soils, and areas of Rock outcrop, dominantly gneiss and schist. These soils were so intermingled it was not practical to map them separately. This unit is found in the relatively undisturbed areas of the New York Botanical Garden, the Bronx Zoo, and Crotona Park.

A typical area of this map unit is about 53 percent Chatfield soils, 25 percent Hollis soils and 20 percent Rock outcrop. Included with these soils in mapping are areas of Charlton soils. Included areas make up about 2 percent of the mapped acreage.

23A. Fluvaquentic Endoaquolls, 0 to 3 percent slopes, frequently flooded (photo).This map unit consists of nearly level areas located in the floodplain of the Bronx River. The soils were too variable to be assigned a series name. Instead, they have been classified to the family level which better reflects their gamut of characteristics. Fluvaquentic Endoaquolls are poorly drained alluvial soils with a thick dark surface. This unit is found at the lowest elevations directly adjacent to the Bronx River, and it is the wettest of the three fluvial map units. This unit is found in the New York Botanical Garden and the Bronx Zoo.

A typical area of this map unit is about 75 percent Fluvaquentic Endoaquolls. Included with these soils in mapping are areas of Fluvaquentic Hapludolls (somewhat poorly drained alluvial soils with a thick dark surface), Fluvaquentic Endoaquolls (poorly drained alluvial soils with a thick dark surface), Fluventic Hapludolls (moderately well drained alluvial soils with a thick dark surface) and Mollic Psammaquents (poorly drained, sandy soils). Included areas make up about 25 percent of the mapped acreage. Due to the inconsistent and often flashy flow of the Bronx River, these recent alluvial deposits are highly variable. There is little or no geomorphic indication that the soil type has changed.

24A. Fluventic Hapludolls, 0 to 3 percent slopes, frequently flooded (photo). This map unit consists of nearly level areas located in the floodplain of the Bronx River. The soils were too variable to be assigned a series name. Instead, they have been classified to the family level which better reflects their gamut of characteristics. Fluventic Hapludolls are moderately well drained alluvial soils with a thick dark surface. This unit is found adjacent to the Bronx River at a slightly higher elevation than the Fluvaquentic Endoaquolls. It has the best drainage of the three fluvial units. This unit can be found at the northern end of the Bronx Zoo and the alluvial island just north of Kazimiroff Blvd.

A typical area of this map unit is about 75 percent Fluventic Hapludolls. Included with these soils in mapping are areas of Fluvaquentic Hapludolls (somewhat poorly drained alluvial soils with a thick dark surface), Aquic Udipsamments (moderately well drained, sandy soils), and Fluvaquentic Endoaquolls (poorly and very poorly drained soils with thick dark surfaces). Included areas make up about 25 percent of the mapped acreage. Due to the inconsistent and often flashy flow of the Bronx River these recent alluvial deposits are highly variable. There is little or no geomorphic indication that the soil type has changed.

25A. Fluventic Hapludolls-Fluvaquentic Endoaquolls complex, 0 to 3 percent slopes, frequently flooded. This map unit consists of nearly level areas located in the floodplain of the Bronx River. The soils were too variable to be assigned a series name. Instead, they have been classified to the family level which better reflects their gamut of characteristics. Fluventic Hapludolls are moderately well drained alluvial soils with a thick dark surface. Fluvaquentic Endoaquolls are poorly drained alluvial soils with a thick dark surface. These soils were so intermingled that it was not practical to map them separately. This unit is found adjacent to the

Bronx River in the northern section of the Bronx Zoo and northeast of the Kazimiroff Blvd Bronx River overpass.

A typical area of this unit is comprised of about 50 percent Fluventic Hapludolls and 30 percent Fluvaquentic Endoaquolls. Included with these soils in mapping are areas of Fluvaquentic Hapludolls (somewhat poorly drained alluvial soils with a thick dark surface), Aquic Udipsamments (moderately well drained sandy soils) and Fluvaquentic Endoaquolls, (very poorly drained alluvial soils). Included areas make up about 20 percent of the mapped acreage. Due to the inconsistent and often flashy flow of the Bronx River these recent alluvial deposits are highly variable. There is little or no geomorphic indication that the soil type has changed.

26A. Greenbelt sandy loam, 0 to 3 percent slopes (photo). This map unit consists of nearly level, well drained Greenbelt soils. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. This unit is predominantly found in city parks and green spaces along parkways.

A typical area of this map unit is comprised of about 78 percent Greenbelt soils. Included with this soil in mapping are areas of Typic Udorthents (well drained, sandy fill soils with less than 10 percent artifacts), Oxyaquic Dystrudepts (moderately well drained, coarse-loamy fill soils with less than 10 percent artifacts), Centralpark soils, Laguardia soils and Dystric Eutrudepts (well drained, coarse-loamy fill soils with greater than 10 percent artifacts). Included areas make up about 22 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

27B. Greenbelt sandy loam, 3 to 8 percent slopes. This map unit consists of gently sloping, well drained Greenbelt soils. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. This unit is predominantly found in city parks and green spaces along parkways.

A typical area of this map unit is comprised of about 78 percent Greenbelt soils. Included with this soil in mapping are areas of Typic Udorthents (well drained, sandy fill soils with less than 10 percent artifacts), Oxyaquic Dystrudepts (moderately well drained, coarse-loamy fill soils with less than 10 percent artifacts), Centralpark soils, Laguardia soils and Dystric Eutrudepts (well drained, coarse-loamy fill soils with greater than 10 percent artifacts). Included areas make up about 22 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

28C. Greenbelt sandy loam, 8 to 15 percent slopes. This map unit consists of moderately sloping, well drained Greenbelt soils. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. This unit is predominantly found in city parks and green spaces along parkways.

A typical area of this map unit is comprised of about 78 percent Greenbelt soils. Included with this soil in mapping are areas of Typic Udorthents (well drained, sandy fill soils with less than 10 percent artifacts), Oxyaquic Dystrudepts (moderately well drained, coarse-loamy fill soils with less than 10 percent artifacts), Centralpark soils, Laguardia soils and Dystric Eutrudepts (well drained, coarse-loamy fill soils with greater than 10 percent artifacts). Included areas make up about 22 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

29D. Greenbelt loam, 15 to 25 percent slopes (photo). This map unit consists of moderately steep, well drained Greenbelt soils. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. This unit is predominantly found in highway embankments along the Bronx River Parkway and narrow strips of green space along the Bronx River.

A typical area of this map unit is comprised of about 78 percent Greenbelt soils. Included with this soil in mapping are areas of Typic Udorthents (well drained, sandy fill soils with less than 10 percent artifacts), Centralpark soils, Laguardia soils, and Dystric Eutrudepts (well drained, coarse-loamy fill soils with greater than 10 percent artifacts). Included areas make up about 22 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

30E. Greenbelt loam, 25 to 35 percent slopes (photo). This map unit consists of steeply sloping, well drained Greenbelt soils. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. This unit is predominantly found in highway embankments along the Bronx River Parkway and Metro-North Railroad lines. It also occurs on the narrow strips of green space along the Bronx River.

A typical area of this map unit is comprised of about 78 percent Greenbelt soils. Included with this soil in mapping are areas of Typic Udorthents (well drained sandy, fill soils with less than 10 percent artifacts), Centralpark soils, Laguardia soils, and Dystric Eutrudepts (well drained, coarse-loamy fill soils with greater than 10 percent artifacts). Included areas make up about 22 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

31F. Greenbelt loam, 35 to 60 percent slopes. This map unit consists of very steeply sloping, well drained Greenbelt soils. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. This unit is predominantly found in highway embankments along the Bronx River Parkway and Metro-North Railroad lines. It also occurs on the narrow strips of green space along the Bronx River.

A typical area of this map unit is comprised of about 78 percent Greenbelt soils. Included with this soil in mapping are areas of Centralpark soils, Typic Udorthents (well drained, sandy fill soils with less than 10 percent artifacts), Laguardia soils, and Dystric Eutrudepts (well drained, coarse-loamy fill soils with greater than 10 percent artifacts). Included areas make up about 22 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

32A. Greenbelt-Centralpark complex, 0 to 3 percent slopes. This map unit consists of nearly level, well drained Greenbelt soils and well drained Centralpark soils. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments, derived from blasting through the local bedrock during urban development**.** These soils were so intermingled it was not practical to map them separately. This unit is predominantly found in city parks and green spaces along parkways.

A typical area of this unit is comprised of about 55 percent Greenbelt soils and 35 percent Centralpark soils. Included with these soils in mapping are areas of Oxyaquic Dystrudepts (coarse-loamy, moderately well drained fill soils with less than 10 percent artifacts), Dystric Eutrudepts (well drained, coarse-loamy fill soils with greater than 10 percent artifacts) and Typic Udorthents (somewhat excessively drained, sandy fill soils with less than 10 percent artifacts). Included areas make up about 10 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

33B. Greenbelt-Centralpark complex, 3 to 8 percent slopes. This map unit consists of gently sloping, well drained Greenbelt soils and well drained Centralpark soils. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development**.** These soils were so intermingled it was not practical to map them separately. This unit is predominantly found in city parks and green spaces along parkways.

A typical area of this unit is comprised of about 55 percent Greenbelt soils and 35 percent Centralpark soils. Included with these soils in mapping are areas of Oxyaquic Dystrudepts (coarse-loamy, moderately well drained soils with less than 10 percent artifacts), Dystric Eutrudepts (well drained, coarse-loamy fill soils with greater than 10 percent artifacts) and Typic Udorthents (somewhat excessively drained, sandy fill soils with less than 10 percent artifacts). Included areas make up about 10 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

34F. Greenbelt-Laguardia complex 35 to 60 percent slopes. This map unit consists of very steeply sloping, well drained Greenbelt soils and well drained Laguardia soils. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. Laguardia soils have formed in a thick mantle of fill material that has been mixed with construction debris. These soils were so intermingled it was not practical to map them separately. This map unit is found along the embankments of the Bronx River parkway between Duncomb and Adee Avenues.

A typical area of this unit is comprised of about 55 percent Greenbelt soils and 30 percent Laguardia soils. Included with these soils in mapping are areas of Dystric Eutrudepts (well drained, coarse-loamy fill soils with greater than 10 percent artifacts), Centralpark soils, and Typic Udorthents (somewhat excessively drained, sandy fill soils with less than 10 percent artifacts). Included areas make up about 15 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

35A. Greenbelt-Pavement and buildings complex, cemetery phase, 0 to 3 percent slopes, deep water table. This map unit consists of nearly level, well drained Greenbelt soils and areas of Pavement & buildings. Greenbelt soils in the cemetery have formed in a thick mantle of clean loamy fill material derived from the backfilling of local parent materials, predominantly glacial till. Due to use and management, these soils generally have a slightly lower bulk density in the surface than conventional Greenbelt soils, resulting in a slightly higher surface permeability. The deep water table phase has a seasonal high water table between a depth of 40 and 60 inches from the surface. This unit is found in Woodlawn Cemetery, adjacent to Woodlawn Lake.

A typical area of this unit is comprised of about 53 percent Greenbelt cemetery, deep water table phase soils and 35 percent Pavement and buildings. Included with these soils and paved areas in mapping are areas of Oxyaquic Dystrudepts (moderately well drained coarse-loamy fill soils) Aeric Endoaquepts (somewhat poorly drained coarse-silty fill soils, similar to Tonawanda) and Greenbelt cemetery, very deep water table phase soils. Included areas make up about 17 percent of the mapped acreage. Moderately well and somewhat poorly drained soils can be found closer to Woodlawn Lake and in topographical micro-lows. Greenbelt cemetery, very deep water table phase soils will be found in micro-highs farther away from the lake.

36A. Greenbelt-Pavement and buildings complex, cemetery phase, 0 to 3 percent slopes, very deep water table. This map unit consists of nearly level, well drained Greenbelt soils and areas of Pavement & buildings. Greenbelt soils in the cemetery have formed in a thick mantle of clean loamy fill material derived from the backfilling of local parent materials, predominantly glacial till. Due to use and management, these soils generally have a slightly lower bulk density in the surface than conventional Greenbelt soils, resulting in a slightly higher surface permeability. The very deep water table phase has a seasonal high water table below a depth of 60 inches. This unit is found in Woodlawn Cemetery.

A typical area of this unit is comprised of about 60 percent Greenbelt cemetery, very deep water table phase soils and 35 percent Pavement and buildings. Included with these soils and paved areas in mapping are areas of Charlton soils and Greenbelt cemetery, deep water table phase soils. Included areas make up about 5 percent of the mapped acreage. Greenbelt cemetery, deep water table phase soils can be found in topographical lows where water is converging. Charlton soils may be found in undisturbed areas around the edges of larger cemetery plots and mausoleums. However, as fill materials can be highly variable, these soils are likely to be scattered throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

37B. Greenbelt-Pavement and buildings complex, cemetery phase, 3 to 8 percent slopes, very deep water table. This map unit consists of gently sloping, well drained Greenbelt soils and Pavement & buildings. Greenbelt soils in the cemetery have formed in a thick mantle of clean loamy fill material derived from the backfilling of local parent materials, predominantly glacial till. Due to use and management, these soils generally have a slightly lower bulk density in the surface than conventional Greenbelt soils, resulting in a slightly higher surface permeability. The very deep water table phase has a seasonal high water table below a depth of 60 inches. This unit is found in Woodlawn Cemetery.

A typical area of this unit is comprised of about 70 percent Greenbelt cemetery, very deep water table phase soils and 25 percent Pavement and buildings. Included with these areas in mapping are Charlton soils. Included soils make up about 5 percent of the mapped acreage. Charlton soils may be found in undisturbed areas around the edges of larger cemetery plots and mausoleums. However, as fill materials can be highly variable, these soils are likely to be scattered throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

38C. Greenbelt-Pavement and buildings complex, cemetery phase, 8 to 15 percent slopes, very deep water table. This map unit consists of moderately sloping, well drained Greenbelt soils and areas of Pavement & buildings. Greenbelt soils in the cemetery have formed in a thick mantle of clean loamy fill material derived from the backfilling of local parent materials, predominantly glacial till. Due to use and management, these soils generally have a slightly lower bulk density in the surface than conventional Greenbelt soils, resulting in a slightly higher surface permeability. The very deep water table phase has a seasonal high water table below a depth of 60 inches. This unit is found in Woodlawn Cemetery.

A typical area of this unit is comprised of about 61 percent Greenbelt cemetery, very deep water table phase soils and 33 percent Pavement and buildings. Included with these areas in mapping are Charlton soils. Included soils make up about 6 percent of the mapped acreage. Charlton soils may be found around the edges of larger cemetery plots and mausoleums. However, as fill materials can be highly variable, these soils are likely to be scattered throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

39D. Greenbelt-Pavement and buildings complex, cemetery phase, 15 to 25 percent slopes, very deep water table. This map unit consists of moderately steeply sloping, well drained Greenbelt soils and areas of Pavement & buildings. Greenbelt soils in the cemetery have formed in a thick mantle of clean loamy fill material derived from backfilling of local parent materials, predominantly glacial till. Due to use and management, these soils generally have a slightly lower bulk density in the surface than conventional Greenbelt soils, resulting in a slightly higher permeability. The very deep water table phase has a seasonal high water table below a depth of 60 inches. This unit is found in Woodlawn Cemetery.

A typical area of this unit is comprised of about 66 percent Greenbelt cemetery, very deep water table phase soils and 27 percent Pavement and buildings. Included with these areas in mapping are Charlton soils. Included soils make up about 7 percent of the mapped acreage. Charlton soils may be found around the edges of larger cemetery plots and mausoleums. However, as fill materials can be highly variable, these soils are likely to be scattered throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

40E. Greenbelt-Pavement and buildings complex, cemetery phase, 25 to 35 percent slopes, very deep water table. This map unit consists of steeply sloping, well drained Greenbelt soils and areas of Pavement & buildings. Greenbelt soils in the cemetery have formed in a thick mantle of clean loamy fill material derived from the backfilling of local parent materials, predominantly glacial till. Due to use and management, these soils generally have a slightly lower bulk density in the surface than conventional Greenbelt soils, resulting in a slightly higher surface permeability. The very deep water table phase has a seasonal high water table below a depth of 60 inches. This unit is found in Woodlawn Cemetery.

A typical area of this unit is comprised of about 70 percent Greenbelt cemetery, very deep water table phase soils and 22 percent Pavement and buildings. Included with these areas in mapping are Charlton soils. Included soils make up about 8 percent of the mapped acreage. Charlton soils may be found around the edges of larger cemetery plots and mausoleums.

However, as fill materials can be highly variable, these soils are likely to be scattered throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

41F. Centralpark sandy loam, 35 to 60 percent slopes, very rubbly (photo). This map unit consists of very steeply sloping, well drained Centralpark soils. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development. Stones or boulders cover 15 to 50 percent of the surface. This unit is found along the Bronx River where large stones and boulders have been used to stabilize the riverbank or steep embankments along the Bronx River Parkway.

A typical area of this unit is about 80 percent Centralpark very rubbly soils. Included with these soils in mapping are Greenbelt soils, Laguardia soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts) and Typical Udorthents (coarse-loamy fill soils with greater than 90 percent coarse fragments and less than 10 percent artifacts). Included areas make up about 20 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

42G. Centralpark sandy loam, 60 to 80 percent slopes, very rubbly. This map unit consists of very steeply sloping, well drained Centralpark soils. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development. Stones or boulders cover 15 to 50 percent of the surface. This unit is found along the Bronx River where large stones and boulders have been used to stabilize the riverbank or steep embankments along the Bronx River Parkway.

A typical area of this unit is about 80 percent Centralpark very rubbly soils. Included with these soils in mapping are Greenbelt soils, Laguardia soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts) and Typical Udorthents (coarse-loamy fill soils with greater than 90 percent coarse fragments and less than 10 percent artifacts). Included areas make up about 20 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

43F. Greenbelt-Centralpark very rubbly complex, 35 to 60 percent slopes. This map unit consists of very steeply sloping, well drained Greenbelt and Centralpark very rubbly soils so intermingled that it was not practical to map them separately. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development. This unit is found along the Bronx River where large stones and boulders have been used to stabilize the riverbank or steep embankments along the Bronx River Parkway.

A typical area of this map unit is about 46 percent Greenbelt soils and 40 percent Centralpark very rubbly soils. Included with these soils in mapping are Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Laguardia soils, and Typical Udorthents (coarse-loamy fill soils with greater than 90 percent coarse fragments and less than 10 percent artifacts).

Included areas make up about 14 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed

44G. Greenbelt-Centralpark very rubbly complex, 60 to 80 percent slopes (photo). This map unit consists of very steep, well drained Greenbelt and Centralpark very rubbly soils so intermingled that it was not practical to map them separately. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. Centralpark soils have formed in a thick mantle of clean loamy fill material with greater than 35 percent gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development. This unit is found along the Bronx River where large stones and boulders have been used to stabilize the riverbank or steep embankments along the Bronx River Parkway.

A typical area of this map unit is about 46 percent Greenbelt soils and 40 percent Centralpark very rubbly soils. Included with these soils in mapping are Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Laguardia soils, and Typical Udorthents (coarse-loamy fill soils with greater than 90 percent coarse fragments and less than 10 percent artifacts). Included areas make up about 14 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed

45A. Holderton silt loam, 0 to 3 percent slopes, occasionally flooded (photo). This map unit consists of nearly level, somewhat poorly drained Holderton soils located on the floodplain of the Bronx River. These soils have formed in loamy alluvial deposits in a small backwater area below the river levee. The only unit is located in the scoured area between Burke and Adee Avenues on the west side of the Bronx River.

A typical area of this map unit is about 85 percent Holderton soils. Included with this soil in mapping are areas of Limerick, Olinville, and Pootatuck soils. Included areas make up about 15 percent of the mapped acreage. Pootatuck soils will likely be located at higher elevations closer to the levee. However, the pairing of alluvial soils with anthropogenically disturbed soils makes the geomorphology of this unit very complex. Both alluvial and anthropogenic deposits are highly variable and there may be little or no geomorphic indication that the soil type has changed.

46A. Holderton-Fluvaquentic Endoaquolls complex, 0 to 3 percent slopes, occasionally flooded. This map unit consists of nearly level, somewhat poorly drained Holderton soils and poorly drained Fluvaquentic Endoaquolls located on the floodplain of the Bronx River. These soils were so intermingled that it was not practical to map them separately. Fluvaquentic Endoaquolls are alluvial soils with a thick dark surface horizon, too variable to be assigned a series name. Instead, they have been classified to the family level which better reflects their gamut of characteristics. This map unit is found in the scoured area between Burke and Adee Avenues on the west side of the Bronx River.

A typical area of this map unit is about 55 percent Holderton soils and 35 percent Fluvaquentic Endoaquolls. Included with these soils in mapping are areas of Pootatuck soils, Olinville soils, and Fluventic Hapludolls (moderately well drained alluvial soils with a thick dark surface horizon). Included areas make up about 10 percent of the mapped acreage. The pairing of alluvial soils with anthropogenically disturbed soils makes the geomorphology of this unit very complex. Both alluvial and anthropogenic deposits are highly variable and there may be little or no geomorphic indication that the soil type has changed.

47A. Holderton-Olinville complex, 0 to 3 percent slopes, occasionally flooded. This map unit consists of nearly level, somewhat poorly drained Holderton soils and moderately well drained Olinville soils located on the floodplain of the Bronx River. These soils were so intermingled that it was not practical to map them separately. Holderton soils have formed in loamy alluvial deposits. Olinville soils have formed in a shallow to moderately deep a mantle of anthrotransported materials over recent alluvium. The only unit is located between Arnow and Adee Avenues on the east side of the Bronx River.

A typical area of this map unit is about 45 percent Holderton soils and 40 percent Olinville soils. Included with this soil in mapping are areas of Pootatuck soils, Limerick soils, Fluvaquentic Endoaquolls (poorly drained alluvial soils with a thick dark surface horizon) and Fluventic Hapludolls (moderately well drained alluvial soils with a thick dark surface horizon). Included areas make up about 15 percent of the mapped acreage. Pootatuck soils will likely be located at higher elevations closer to the levee. However, the pairing of alluvial soils with anthropogenically disturbed soils makes the geomorphology of this unit very complex. Both alluvial and anthropogenic deposits are highly variable and there may be little or no geomorphic indication that the soil type has changed.

48A. Laguardia sandy loam, 0 to 3 percent slopes, very stony (photo). This map unit consists of nearly level, well drained Laguardia soils. Laguardia soils have formed in a thick mantle of loamy fill material laden with bricks and other construction debris derived from the cutting, filling, and reworking of urbanized land. These soils contain greater than 35 percent coarse fragments, including more than 10 percent artifacts. This unit is found only in Soundview Park. When the park was developed to have fields and trails for recreation, concrete stones and boulders and other construction debris were concentrated to the remaining space creating very stony surfaces.

A typical area of this map unit is about 80 percent Laguardia soils. Included with these soils in mapping are areas of Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Greenbelt soils, Centralpark soils, and Typical Udorthents (fragmental fill soils with greater than 90 percent coarse fragments and greater than 10 percent artifacts). Included areas make up about 20 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

49B. Laguardia sandy loam, 3 to 8 percent slopes, very stony (photo). This map unit consists of gently sloping, well drained Laguardia soils. Laguardia soils have formed in a thick mantle of loamy fill material laden with bricks and other construction debris derived from the cutting, filling, and reworking of urbanized land. These soils contain greater than 35 percent coarse fragments, including more than 10 percent artifacts. This unit is found only in Soundview Park. When the park was developed to have fields and trails for recreation, concrete stones and boulders and other construction debris were concentrated to the remaining space creating very stony surfaces.

A typical area of this map unit is 80 percent Laguardia soils. Included with these soils in mapping are areas of Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Greenbelt soils, Centralpark soils, and Typical Udorthents (fragmental fill soils with greater than 90 percent coarse fragments and greater than 10 percent artifacts). Included areas make up about 20 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

50C. Laguardia sandy loam, 8 to 15 percent slopes, very stony. This map unit consists of moderately sloping, well drained Laguardia soils. Laguardia soils have formed in a thick mantle of loamy fill material laden with bricks and other construction debris derived from the cutting, filling, and reworking of urbanized land. These soils contain greater than 35 percent coarse fragments, including more than 10 percent artifacts. This unit is found only in Soundview Park. When the park was developed to have fields and trails for recreation, concrete stones and boulders and other construction debris were concentrated to the remaining space creating very stony surfaces.

A typical area of this map unit is about 80 percent Laguardia soils. Included with these soils in mapping are areas of Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Greenbelt and Centralpark soils. Included areas make up about 20 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

51A. Laguardia sandy loam, 0 to 3 percent slopes (photo). This map unit consists of nearly level, well drained Laguardia soils. Laguardia soils have formed in a thick mantle of loamy fill material laden with bricks and other construction debris derived from the cutting, filling, and reworking of urbanized land. These soils contain greater than 35 percent coarse fragments, including more than 10 percent artifacts. This unit is predominantly found in city parks (specifically those along the shore line), and green spaces along parkways.

A typical area of this map unit is about 80 percent Laguardia soils. Included with these soils in mapping are areas of Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Greenbelt soils, Centralpark soils, and Typical Udorthents (fragmental fill soils with greater than 90 percent coarse fragments and greater than 10 percent artifacts). Included areas make up about 20 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

52B. Laguardia sandy loam, 3 to 8 percent slopes. This map unit consists of gently sloping, well drained Laguardia soils. Laguardia soils have formed in a thick mantle of loamy fill material laden with bricks and other construction debris derived from the cutting, filling, and reworking of urbanized land. These soils contain greater than 35 percent coarse fragments, including more than 10 percent artifacts. This unit is predominantly found in city parks (specifically those along the shore line), and green spaces along parkways.

A typical area of this map unit is about 80 percent Laguardia soils. Included with these soils in mapping are areas of Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Greenbelt soils, Centralpark soils, and Typical Udorthents (fragmental fill soils with greater than 90 percent coarse fragments and greater than 10 percent artifacts). Included areas make up about 20 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

53C. Laguardia sandy loam, 8 to 15 percent slopes (photo). This map unit consists of strongly sloping, well drained Laguardia soils. Laguardia soils have formed in a thick mantle of loamy fill material laden with bricks and other construction debris derived from the cutting, filling, and reworking of urbanized land. These soils contain greater than 35 percent coarse fragments, including more than 10 percent artifacts. This unit is predominantly found in city parks (specifically those along the shore line), and green spaces along parkways.

A typical area of this map unit is about 80 percent Laguardia soils. Included with these soils in mapping are areas of Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Greenbelt and Centralpark soils. Included areas make up about 20 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

54D. Laguardia sandy loam, 15 to 25 percent slopes. This map unit consists of moderately steeply sloping, well drained Laguardia soils. Laguardia soils have formed in a thick mantle of loamy fill material laden with bricks and other construction debris derived from the cutting, filling, and reworking of urbanized land. These soils contain greater than 35 percent coarse fragments, including more than 10 percent artifacts. This unit is predominantly found in Soundview Park and areas along the Bronx River Parkway just north of Soundview.

A typical area of this map unit is about 80 percent Laguardia soils. Included with these soils in mapping are areas of Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Greenbelt and Centralpark soils. Included areas make up about 20 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

55E. Laguardia sandy loam, 25 to 35 percent slopes. This map unit consists of steeply sloping, well drained Laguardia soils. Laguardia soils have formed in a thick mantle of loamy fill material laden with bricks and other construction debris derived from the cutting, filling, and reworking of urbanized land. These soils contain greater than 35 percent coarse fragments, including more than 10 percent artifacts. This unit is predominantly found along the steep slopes of the Bronx River South of the Tremont Avenue Bus Depot, city parks (specifically those along the shore line), and green spaces along parkways.

A typical area of this map unit is 80 percent Laguardia soils. Included with these soils in mapping are areas of Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Greenbelt and Centralpark soils. Included areas make up about 20 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

56F. Laguardia sandy loam, 35 to 60 percent slopes. This map unit consists of very steeply sloping, well drained Laguardia soils. Laguardia soils have formed in a thick mantle of loamy fill material laden with bricks and other construction debris derived from the cutting, filling, and reworking of urbanized land. These soils contain greater than 35 percent coarse fragments, including more than 10 percent artifacts. This unit is predominantly found in highway embankments along the Bronx River Parkway.

A typical area of this map unit is about 80 percent Laguardia soils. Included with these soils in mapping are areas of Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Greenbelt and Centralpark soils. Included areas make up about 20 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

57A. Laguardia-Greenbelt complex, 0 to 3 percent slopes. This map unit consists of nearly level, well drained Laguardia soils and well drained Greenbelt soils so intermingled that it was not practical to map them separately. Laguardia soils have formed in a thick mantle of loamy fill material laden with bricks and other construction debris derived from the cutting, filling, and reworking of urbanized land. These soils contain greater than 35 percent coarse fragments, including more than 10 percent artifacts. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. This unit is predominantly found in highway embankments along the Bronx River Parkway.

A typical area of this map unit is 50 percent Laguardia soils and 30 percent Greenbelt soils. Included with these soils in mapping are areas of Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Centralpark soils, Typic Udorthents (sandy fill soils) and Typical Udorthents (fragmental fill soils with greater than 90 percent coarse fragments and greater than 10 percent artifacts). Included areas make up about 20 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

58B. Laguardia-Greenbelt complex, 3 to 8 percent slopes. This map unit consists of gently sloping, well drained Laguardia soils and well drained Greenbelt soils so intermingled that it was not practical to map them separately. Laguardia soils have formed in a thick mantle of loamy fill material laden with bricks and other construction debris derived from the cutting, filling, and reworking of urbanized land. These soils contain greater than 35 percent coarse fragments, including more than 10 percent artifacts. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. This unit is predominantly found in highway embankments along the Bronx River Parkway.

A typical area of this map unit is 50 percent Laguardia soils and 30 percent Greenbelt soils. Included with these soils in mapping are areas of Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Centralpark soils, Typic Udorthents (sandy fill soils) and Typical Udorthents (fragmental fill soils with greater than 90 percent coarse fragments and greater than 10 percent artifacts). Included areas make up about 20 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

59A. Limerick loam, 0 to 3 percent slopes, frequently ponded. This map unit consists of nearly level, poorly drained Limerick soils. Limerick soils have formed in silty alluvial deposits on floodplains. The only area of this map unit is found to the east of the Bronx River Parkway between Burke and Adee Avenues. This was probably a former backswamp or filled-in meander on the floodplain, but it has been cut off from the river by the construction of the Bronx River Parkway. Now that it is isolated from the Bronx River, storm water runoff from the parkway continues to pond in this area.

A typical area of this map unit is about 80 percent Limerick soils. Included with this soil in mapping are areas of Holderton soils, Pootatuck soils, and Fluvaquentic Humaquepts (poorly drained alluvial soils with an organic surface horizon). Included areas make up about 20 percent of the mapped acreage. Holderton and Pootatuck soils can be found in micro-highs. Fluvaquentic Humaquepts will be located in the micro-lows.

60A. Natchaug muck, 0 to 3 percent slopes, ponded (photo). This map unit consists of nearly level, very poorly drained Natchaug soils. Natchaug soils have formed from woody and herbaceous organic materials overlying loamy deposits in depressions on till plains. This map unit is found in the Mitsubishi Wetland in the New York Botanical Garden.

A typical area of this map unit is about 85 percent Natchaug soils. Included with this unit in mapping are areas of Fluvaquentic Humaquepts (poorly drained soils with an organic surface horizon), Typic Haplosaprists (soils with greater than 51 inches or organic material-Catden series) and Terric Haplosaprists (soils with less than 51 inches of organic material over sandy deposits-Timakwa series). Included areas make up about 15 percent of the mapped acreage. Soils with the thickest organic horizons will be found where the water ponds for the greatest amount of time.

61A. Olinville loam, 0 to 3 percent slopes, occasionally flooded (photo). This map unit consists of nearly level, moderately well drained Olinville soils. Olinville soils have formed in a shallow to moderately deep mantle of anthrotransported materials over recent alluvium. This unit can be found on the former Cricket Pitch and in the Bronx River Forest on both sides of the river between Magenta and Burke Avenues.

A typical area of this map unit consists of about 80 percent Olinville soils. Included with this soil in mapping are areas of Holderton soils, Pootatuck soils, Suncook soils, Fluventic Hapludolls (alluvial soils with a thick dark surface horizon), Fluvaquentic Endoaquolls (poorly drained alluvial soils with a thick dark surface horizon) and soils with a buried pavement layer. Included areas make up about 20 percent of the mapped acreage. The pairing of alluvial soils with anthropogenically disturbed soils makes the geomorphology of this unit very complex. Both alluvial and anthropogenic deposits are highly variable and there may be little or no geomorphic indication that the soil type has changed.

62A. Pavement & buildings, tidal marsh substratum, 0 to 3 percent slopes. This map unit consists of nearly level areas in the urban core. Pavement and buildings cover 90 percent or more of the landscape where tidal marsh was once likely the dominant parent material. Tidal marsh is likely to have been buried beneath a significant thickness of fill materials. This unit is only found south of the Bruckner Expressway where pavement dominates.

A typical area of this map unit is about 92 percent Pavement and buildings. Included with these areas in mapping are areas of Greenbelt and Laguardia soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts) and Centralpark soils. These soils will likely be found in yards, open spaces between buildings and abandoned parcels. Included areas make up about 8 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

63A. Pavement & buildings, till substratum, 0 to 3 percent slopes. This map unit consists of nearly level areas in the urban core. Pavement and buildings cover 90 percent or more of the landscape where till was once likely the dominant parent material. Till may be found below a depth of 40 inches. This unit can be found anywhere where pavement dominates.

A typical area of this map unit is about 92 percent Pavement and buildings. Included with these areas in mapping are areas of Greenbelt and Laguardia soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts) and Centralpark soils. These soils will likely be found in yards, open spaces between buildings and abandoned parcels. Included areas make up about 8 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

64B. Pavement & buildings, till substratum, 3 to 8 percent slopes. This map unit consists of gently sloping areas in the urban core. Pavement and buildings cover 90 percent or more of the landscape where till was once likely the dominant parent material. Till may be found below a depth of 40 inches.

A typical area of this map unit is about 92 percent Pavement and buildings. Included with these areas in mapping are areas of Greenbelt and Laguardia soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts) and Centralpark soils. These soils will likely be found in yards, open spaces between buildings and abandoned parcels. Included areas make up about 8 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

65C. Pavement & buildings, till substratum, 8 to 15 percent slopes. This map unit consists of moderately sloping areas in the urban core. Pavement and buildings cover 90 percent or more of the landscape where till was once likely the dominant parent material. Till may be found below a depth of 40 inches.

A typical area of this map unit is about 92 percent Pavement and buildings. Included with these areas in mapping are areas of Greenbelt and Laguardia soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts) and Centralpark soils. These soils will likely be found in yards, open spaces between buildings and abandoned parcels. Included areas make up about 8 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

66A. Pavement & buildings, alluvium substratum, 0 to 3 percent slopes. This map unit consists of nearly level areas in the urban core. Pavement and buildings cover 90 percent or more of the landscape where alluvium was once likely the dominant parent material. Alluvium may be found below a depth of 40 inches. This unit can be found in highly urbanized areas directly adjacent to the Bronx River.

A typical area of this map unit is about 92 percent Pavement and buildings. Included with these areas in mapping are areas of Greenbelt and Laguardia soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts) and Centralpark soils. These soils will likely be found in yards, open spaces between buildings and abandoned parcels. Included areas make up about 8 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

67A. Pavement & buildings-Greenbelt complex, 0 to 3 percent slopes, low impervious surface phase. This map unit consists of nearly level areas of Pavement and buildings and well drained Greenbelt soils in the urban core. These areas were so intermingled it was not practical to map them separately. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. This unit is found in city housing communities where high rise buildings are surrounded by large courtyard areas.

A typical area of this map unit is about 55 percent Pavement and buildings and 38 percent Greenbelt soils. Included with these areas in mapping are Laguardia soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Centralpark soils, and Oxyaquic Dystrudepts (coarse-loamy moderately well drained fill soils with less than 10 percent artifacts). These soils will likely be found in yards, open spaces between buildings and abandoned parcels. Included areas make up about 7 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

68B. Pavement & buildings-Greenbelt complex, 3 to 8 percent slopes, low impervious surface phase. This map unit consists of gently sloping areas of Pavement and buildings and well drained Greenbelt soils in the urban core. These areas were so intermingled it was not practical to map them separately. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. This unit is found in city housing communities where high rise buildings are surrounded by large courtyard areas.

A typical area of this map unit is about 55 percent Pavement and buildings and 38 percent Greenbelt soils. Included with these areas in mapping are Laguardia soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Centralpark soils, and Oxyaquic Dystrudepts (coarse-loamy moderately well drained fill soils with less than 10 percent artifacts). These soils will likely be found in yards, open spaces between buildings and abandoned parcels. Included areas make up about 7 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

69C. Pavement & buildings-Greenbelt complex, 8 to 15 percent slopes, low impervious surface phase. This map unit consists of moderately sloping areas of Pavement and buildings and well drained Greenbelt soils in the urban core. These areas were so intermingled it was not practical to map them separately. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local parent materials during urban development. This unit is found in city housing communities where high rise buildings are surrounded by large courtyard areas.

A typical area of this map unit is about 55 percent Pavement and buildings and 38 percent Greenbelt soils. Included with these areas in mapping are Laguardia soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), Centralpark soils and Oxyaquic Dystrudepts (coarse-loamy moderately well drained fill soils with less than 10 percent artifacts). These soils will likely be found in yards, open spaces between buildings and abandoned parcels. Included areas make up about 7 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

70A. Pavement & buildings-Greenbelt complex, 0 to 3 percent slopes. This map unit consists of nearly level areas of Pavement and buildings and well drained Greenbelt soils so intermingled that it was not practical to map them separately. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local materials during urban development.

A typical area of this map unit is about 80 percent Pavement and buildings and 12 percent Greenbelt soils. Included with these areas in mapping are Laguardia and Centralpark soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts) and Oxyaquic Dystrudepts (coarse-loamy moderately well drained fill soils with less than 10 percent artifacts). Included areas make up about 8 percent of the mapped acreage. These soils will likely be found in yards, open spaces between buildings and abandoned parcels. Included areas make up about 8 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

71B. Pavement & buildings-Greenbelt complex, 3 to 8 percent slopes. This map unit consists of gently sloping areas of Pavement and buildings and well drained Greenbelt soils so intermingled that it was not practical to map them separately. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local materials during urban development.

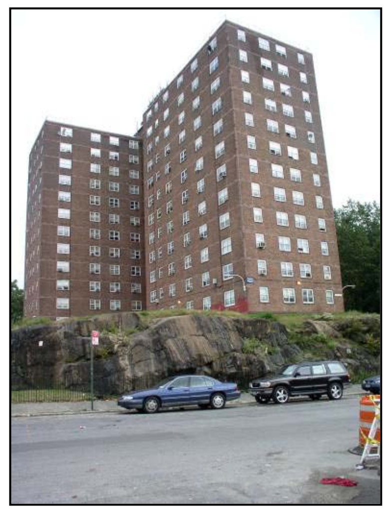
A typical area of this map unit is about 80 percent Pavement and buildings and 12 percent Greenbelt soils. Included with these areas in mapping are Laguardia and Centralpark soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts) and Oxyaquic Dystrudepts (coarse-loamy moderately well drained fill soils with less than 10 percent artifacts). Included areas make up about 8 percent of the mapped acreage. These soils will likely be found in yards, open spaces between buildings and abandoned parcels. Included areas make up about 8 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

72C. Pavement & buildings-Greenbelt complex, 8 to 15 percent slopes. This map unit consists of moderately sloping areas of Pavement and buildings and well drained Greenbelt soils so intermingled that it was not practical to map them separately. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local materials during urban development.

A typical area of this map unit is about 80 percent Pavement and buildings and 12 percent Greenbelt soils. Included with these areas in mapping are Laguardia and Centralpark soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts) and Oxyaquic Dystrudepts (coarse-loamy moderately well drained fill soils with less than 10 percent artifacts). Included areas make up about 8 percent of the mapped acreage. These soils will likely be found in yards, open spaces between buildings and abandoned parcels. Included areas make up about 8 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

73D. Pavement & buildings-Greenbelt complex, 15 to 25 percent slopes. This map unit consists of moderately steep areas of Pavement and buildings and well drained Greenbelt soils so intermingled that it was not practical to map them separately. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local materials during urban development.

A typical area of this map unit is about 80 percent Pavement and buildings and 12 percent Greenbelt soils. Included with these areas in mapping are Laguardia and Centralpark soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts) and Oxyaquic Dystrudepts (coarse-loamy moderately well drained fill soils with less than 10 percent artifacts). Included areas make up about 8 percent of the mapped acreage. These soils will likely be found in yards, open spaces between buildings and abandoned parcels. Included areas make up about 8 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.



74A. Pavement & buildings-Greenbelt-Rock outcrop complex, 0 to 3 percent slopes (photo). This map unit consists of nearly level areas of Pavement and buildings, well drained Greenbelt soils and Rock outcrop, dominantly gneiss and schist. These areas were so intermingled it was not practical to map them separately. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local materials during urban development. This unit is of limited extent, but can be found at the Pelham Parkway Houses and along 213th Street and Holland Avenue. Due to the presence of Rock outcrop, predominantly gneiss and schist, the residential land use in this area is limited. Lot sizes are larger and some lots are vacant due to bedrock.

A typical area of this map unit is about 70 percent Pavement & buildings, 12 percent Greenbelt soils and 10 percent Rock outcrop. Included with these areas in mapping are Centralpark and Laguardia soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts) and Oxyaquic Dystrudepts (coarse-loamy moderately well drained fill soils with less than 10 percent artifacts). Included areas make up about 8 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

75B. Pavement & buildings-Greenbelt-Rock outcrop complex, 3 to 8 percent slopes (photo). This map unit consists of gently sloping areas of Pavement and buildings, well drained Greenbelt soils and Rock outcrop, dominantly gneiss and schist. These areas were so intermingled it was not practical to map them separately. Greenbelt soils have formed in a thick mantle of clean loamy fill material derived from the cutting, filling, and reworking of local materials during urban development. This unit is of limited extent, but

can be found at the Pelham Parkway Houses and along 213th Street and Holland Avenue. Due to the presence of Rock outcrop, predominantly gneiss and schist, the residential land use in this area is limited. Lot sizes are larger and some lots are vacant due to bedrock.

A typical area of this map unit is about 70 percent Pavement & buildings, 12 percent Greenbelt soils and 10 percent Rock outcrop. Included with this area in mapping are Centralpark and Laguardia soils, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts) and Oxyaquic Dystrudepts (coarse-loamy moderately well drained fill soils with less than 10 percent artifacts). Included areas make up about 8 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

76A. Pootatuck loam, 0 to 3 percent slopes, occasionally flooded. This map unit consists of nearly level, moderately well drained Pootatuck soils. Pootatuck soils have formed in loamy alluvial sediments deposited by the Bronx River. This unit can be found on the Bronx River floodplain between Nereid Ave and E. 241st street.

A typical area of this map unit is about 85 percent Pootatuck soils. Included with this soil in mapping are Holderton soils, Fluvaquentic Endoaquolls (somewhat poorly and very poorly drained alluvial soils) and Fluventic Dystrudepts (well drained alluvial soils.) Due to the highly variable nature of alluvial deposits it was not possible to classify these inclusions to the series level. Included areas make up about 15 percent of the mapped acreage. Fluvaquentic Endoaquolls are located in lower areas closer to the river and Fluventic Dystrudepts will be located at higher flood plain elevations.

77B. Pootatuck loam, 3 to 8 percent slopes, occasionally flooded (photo). This map unit consists of gently sloping, moderately well drained Pootatuck soils. Pootatuck soils have formed in loamy alluvial sediments deposited by the Bronx River. This unit can be found on the Bronx River floodplain between Nereid Ave and E. 241st Street.

A typical area of this map unit is about 85 percent Pootatuck soils. Included with this soil in mapping are Fluventic Dystrudepts (well drained alluvial soils), Greenbelt, Suncook and Holderton soils. Included areas make up about 15 percent of the mapped acreage. Fluventic Dystrudepts and Suncook soils will be located at higher flood plain elevations, Greenbelt soils will be found in filled areas closer to the Metro-North Railroad tracks. The pairing of alluvial soils with anthropogenically disturbed soils makes the geomorphology of this unit very complex. Both alluvial and anthropogenic deposits are highly variable and there may be little or no geomorphic indication that the soil type has changed.

78A. Pootatuck-Fluventic Hapludolls complex, 0 to 3 percent slopes, occasionally flooded. This map unit consists of nearly level, moderately well drained Pootatuck soils and well drained Fluventic Hapludolls so intermingled it was not practical to map them separately. Pootatuck and Fluventic Hapludolls have formed in alluvial sediments deposited by the Bronx River. Fluventic Hapludolls were too variable to be assigned a series name. Instead, they have been classified to the family level which better reflects their gamut of characteristics. This unit can be found on the west side of the Bronx River floodplain between Burke and Adee Avenues.

A typical area of this map unit is about 60 percent Pootatuck and 30 percent Fluventic Hapludolls. Included with these soils in mapping are areas of Fluvaquentic Endoaquolls (somewhat poorly and poorly drained alluvial soils), Holderton and Olinville soils. Included areas make up about 10 percent of the mapped acreage. Fluvaquentic Endoaquolls can be found at the lowest elevations directly adjacent to the river. Holderton soils will be found in small backwater areas behind the levee. Olinville soils are found in areas that have been slightly anthropogenically disturbed, having less than 40 inches of fill on top of recent alluvial deposits. The pairing of alluvial soils with anthropogenically disturbed soils makes the geomorphology of this unit very complex. Both alluvial and anthropogenic deposits are highly variable and there may be little or no geomorphic indication that the soil type has changed.

79A. Pootatuck-Olinville complex, 0 to 3 percent slopes, occasionally flooded. This map unit consists of nearly level, moderately well drained Pootatuck soils and moderately well drained Olinville soils so intermingled it was not practical to map them separately. Pootatuck soils have formed in loamy alluvial sediments moving away from the levee. Olinville soils have formed in a shallow to moderately deep mantle of clean anthrotransported materials over recent alluvium. This unit can be found in the Bronx River floodplain between Burke and Arnow Avenues.

A typical area of this map unit consists of about 55 percent Pootatuck and 35 percent Olinville soils. Included with this area in mapping are areas of Fluventic Hapludolls (alluvial soils with a thick dark surface horizon) and Fluvaquentic Endoaquolls (poorly drained alluvial soils with a thick dark surface horizon). Included areas make up about 10 percent of the mapped acreage. The pairing of alluvial soils with anthropogenically disturbed soils makes the geomorphology of this unit very complex. Both alluvial and anthropogenic deposits are highly variable and there may be little or no geomorphic indication that the soil type has changed.

80A. Pootatuck-Suncook-Olinville complex, 0 to 3 percent slopes, occasionally flooded. This map unit consists of nearly level, moderately well drained Pootatuck soils, excessively drained Suncook soils and moderately well drained Olinville soils located on the floodplain of the Bronx River. These soils were so intermingled it was not practical to map them separately. Pootatuck soils have formed in loamy alluvial sediments moving away from the levee. Suncook soils have formed in sandy alluvial sediments on the levee. Olinville soils have formed in a shallow to moderately deep mantle of anthrotransported materials over recent loamy alluvium. This unit can be found north of the Burke Avenue Bridge on the west side of the Bronx River.

A typical area of this map unit consists of about 43 percent Pootatuck soils, 30 percent Suncook soils and 20 percent Olinville soils. Included with this area in mapping are areas of Holderton soils, Fluventic Hapludolls (moderately well and somewhat poorly drained alluvial soils with a thick dark surface horizon) and Fluvaquentic Endoaquolls (very poorly and poorly drained alluvial soils with a thick dark surface horizon). Included areas make up about 7 percent of the mapped acreage. Both alluvial and anthropogenic deposits are highly variable and there may be little or no geomorphic indication that the soil type has changed.

81A. Rikers very gravelly loamy sand, 0 to 3 percent slopes (photo). This unit consists of nearly level, excessively drained Rikers soils. These anthropogenic soils have formed in a mixture of unburned coal, coal slag and coal ash. This unit is found on the Metro-North Railroad tracks where coal products were used to construct the railroad bed.

A typical area of this map unit consists of about 75 percent Rikers soils. Included with this area in mapping are areas of Typic Udorthents (sandy fill soils), Typic Udorthents (fragmental fill soils with greater than 90 percent coarse fragments), Centralpark and Greenbelt soils. Included areas make up about 25 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

82F. Rikers very gravelly loamy sand, 35 to 60 percent slopes. This unit consists of very steeply sloping, excessively drained Rikers soils. These anthropogenic soils have formed in a mixture of unburned coal, coal slag and coal ash. This unit is found on the side slopes of the Metro-North Railroad bed where coal products were used to construct the railroad bed.

A typical area of this map unit consists of about 75 percent Rikers soils. Included with this area in mapping are areas of Typic Udorthents (fragmental fill soils with greater than 90 percent coarse fragments), Centralpark and Greenbelt soils, and Typic Udorthents (sandy fill soils). Included areas make up about 25 percent of the mapped acreage. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the map unit. There is usually no geomorphic indication that the soil type has changed.

83G. Rock outcrop-Hollis-Chatfield complex, 60 to 80 percent slopes. This unit consists of very steeply sloping areas of gneiss and schist bedrock, shallow, well drained Hollis soils and moderately deep, well drained Chatfield soils. These soils were so intermingled it was not practical to map them separately. This unit is typically found in the New York Botanical Garden along the banks of the Bronx River where the flow of water has eroded through the local bedrock creating a narrow steep gorge.

A typical area of this unit is about 70 percent Rock outcrop, 18 percent Hollis and 12 percent Chatfield soils. This map unit has no inclusions.

84A. Suncook fine sandy loam, 0 to 3 percent slopes, occasionally flooded (photo). This map unit consists of nearly level, excessively drained Suncook soils. These soils have formed in sandy alluvial deposits on the floodplain of the Bronx River. This unit is found in the Bronx River Forest between Magenta and Rosewood Streets.

A typical area of this unit is about 80 percent Suncook soils. Included with this soil in mapping are areas of Fluventic Dystrudepts (well drained alluvial soils), Olinville and Pootatuck soils, and soils with a buried pavement layer. Included areas make up about 20 percent of the mapped acreage. Buried pavement layer soils exist where roads once crossed the Bronx River before the Parkway was constructed. The pairing of alluvial soils with anthropogenically disturbed soils makes the geomorphology of this unit very complex. Both alluvial and anthropogenic deposits are highly variable and there may be little or no geomorphic indication that the soil type has changed.

85A. Suncook sandy loam, 0 to 3 percent slopes. This map unit consists of nearly level, excessively drained Suncook soils. These soils have formed in sandy alluvial deposits on the floodplain of the Bronx River. This unit is found between the Bronx River Parkway and the Bronx River just north of 241st Street.

A typical area of this unit is about 77 percent Suncook soils. Included with this soil in mapping are areas of Greenbelt, Laguardia, Centralpark, Dystric Eutrudepts (coarse-loamy fill soils with greater than 10 percent artifacts), and Pootatuck soils. Included areas make up about 23 percent of the mapped acreage. The anthropogenic fill soils are likely to be found closer to the Bronx River Parkway. As fill materials can be highly variable, there is usually no geomorphic indication that the soil type has changed.

86A. Tonawanda silt loam, 0 to 3 percent slopes. This map unit consists of nearly level, somewhat poorly drained Tonawanda soils. These soils have formed in silty deposits in depressions on till plains. This unit is found in the New York Botanical Garden “Native Forest.”

A typical area of this unit is about about 80 percent Tonawanda soils. Included with this soil in mapping are small areas of Aquic Dystrudepts (moderately well drained till soils), Canandaigua (very poorly drained soils) and Charlton soils. Included areas make up about 20 percent of the mapped acreage. Aquic Dystrudepts and Charlton inclusions can be found in the transition zone grading from the upland to the depression or where the slope is convex. Very poorly drained Canandaigua soils may be found at the lowest point in the depressions.

87B. Tonawanda silt loam, 3 to 8 percent slopes (photo). This map unit consists of gently sloping, somewhat poorly drained Tonawanda soils. These soils have formed in silty deposits in depressions on till plains. This unit is found in the New York Botanical Garden “Native Forest.”

A typical area of this unit is about 80 percent Tonawanda soils. Included with these soils in mapping are small areas of Aquic Dystrudepts (moderately well drained till soils), Canandaigua and Charlton soils. Included areas make up about 20 percent of the mapped acreage. Aquic Dystrudepts and Charlton inclusions can be found in the transition zone grading from the upland to the depression or where the slope is convex. Canandaigua soils may be found at the lowest point in the depressions.

88A. Tonawanda silt loam, 0 to 3 percent slopes, recreational parkland phase (photo). This map unit consists of nearly level, somewhat poorly drained Tonawanda soils. These soils have formed in silty deposits in depressions on anthropogenically disturbed till plains. The modern drainage no longer reflects that of a somewhat poorly drained soil, because the creation of the sewers has redirected the flow of water. Due to use and management, Tonawanda soils in recreational parkland generally have a higher bulk density in the surface than the same soils in wooded areas, resulting in a lower surface permeability. This unit is found on the Pelham Parkway across from the New York Institute for Special Education. This area is a natural low, likely part of an area formerly called the “Bear Swamp.” The remainder of the swamp was filled with gneiss and schist coarse fragments derived from blasting through the local bedrock during urban development.

A typical area of this unit is about 75 percent Tonawanda soils. Included with this soil in mapping are small areas of Oxyaquic Dystrudepts (moderately well drained coarse-loamy fill soils), Canandaigua (poorly drained), Greenbelt and Centralpark soils. Included areas make up about 25 percent of the mapped acreage. Greenbelt and Centralpark soils may be located on the edges of this map unit. As fill materials can be highly variable, these soils are found (in) scattered (areas) on the edge of the unit. There is usually no geomorphic indication that the soil type has changed.

89B. Tonawanda silt loam, 3 to 8 percent slopes, recreational parkland phase. This map unit consists of gently sloping, somewhat poorly drained Tonawanda soils. These soils have formed in silty deposits in anthropogenically disturbed depressions on till plains. Due to use and management, Tonawanda soils in recreational parkland generally have a higher bulk density in the surface than the same soils in wooded areas, resulting in a lower surface permeability. This unit is found in the zebra paddocks at the Bronx Zoo.

A typical area of this unit is about 75 percent Tonawanda soils. Included with these soils in mapping are small areas of Canandaigua soils, Aquic Dystrudepts (moderately well drained coarse-silty fill soils), Typic Dystrudepts (well drained coarse-silty fill soils), and Greenbelt soils. Included areas make up about 25 percent of the mapped acreage. Canandaigua soils were found at the lowest elevations in the paddock. Aquic Dystrudepts and Typic Dystrudepts can be found scattered throughout the paddock in filled micro-lows. Greenbelt soils will also be found in deeply filled micro-lows. As fill materials can be highly variable, these soils are found (in) scattered (areas) throughout the unit. There is usually no geomorphic indication that the soil type has changed.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2006). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series.

Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. The categories are defined in the following paragraphs.

ORDER	Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Inceptisol.
SUBORDER	Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udept (*Ud*, meaning humid, plus *ept*, from Inceptisol).
GREAT GROUP	Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Dystrudept (*Dystr*, meaning low base status, plus *udept*, the suborder of the inceptisols that has a udic moisture regime).
SUBGROUP	Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Dystrudepts.
FAMILY	Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, mixed, active, mesic Typic Dystrudepts.
SERIES	The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. An example is Charlton.

Table 11 "Taxonomic Classification of the Soils" indicates the order, suborder, great group, subgroup, and family of the major soil series in the survey area.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993) and in the "Field Book for Describing and Sampling Soils" (Schoeneberger et al, 1998). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 2006). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Canandaigua series

Landscape: Till plain
Land use: Natural areas in the NYBG, Bronx Zoo, and Bronx Park East
Landform: Upland depression
Parent material: Silty water-sorted sediments
Drainage class: Poorly drained
Permeability: Moderate in the surface, moderately slow to moderate in the subsoil and substratum
Saturated hydraulic conductivity: Moderately high to high in the surface, moderately high in the subsoil and substratum
Slope range: 0 to 3 percent
Associated soils: Tonawanda, Charlton
Taxonomic class: Fine-silty, mixed, active, nonacid, mesic Mollic Endoaquepts

Typical Pedon

Canandaigua silt loam, in an area of Canandaigua-Tonawanda silt loams, 0 to 3 percent slopes, in the New York Botanical Garden Native Forest in Bronx County, New York; 355 feet northwest (294 degrees) from the northwest corner of the Snuff Mill Bridge; USGS Central Park, New York topographic quadrangle; lat. 40° 51’42.2” N. and long. 73° 52’ 36.6” W.

A1—0 to 2 inches; black (7.5YR 2/1) silt loam; strong medium granular structure; friable; common fine and few medium roots; very strongly acid (pH 5.0); clear smooth boundary.
A2—2 to 6.5 inches; black (10YR 2/1) silt loam; strong medium and coarse granular structure; friable; common fine and common medium roots; very strongly acid (pH 5.0); abrupt smooth boundary.
Bg1—6.5 to 10 inches; dark gray (10YR 4/1) silt loam; weak medium subangular blocky structure; friable; few fine and common medium roots; common (8 percent) fine prominent brown (7.5YR 4/4) iron concentrations; very strongly acid (pH 5.0); clear smooth boundary.
Bg2—10 to 17 inches; grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure; friable; common (8 percent) fine distinct yellowish brown (10YR 5/6) iron concentrations; very strongly acid (pH 5.0); clear smooth boundary.
BC1—17 to 20 inches; light gray (2.5Y 7/1) silt loam; massive; firm; many (40 percent) medium prominent brownish yellow (10YR 6/8) iron concentrations; strongly acid (pH 5.1); clear smooth boundary.
BC2—20 to 32 inches; light greenish gray (10Y 7/1) silt loam; massive; firm; many (22 percent) medium prominent brownish yellow (10YR 6/8) iron concentrations; strongly acid (pH 5.1); clear smooth boundary.

C1—32 to 36 inches; light greenish gray (10Y 7/1) silt loam/loam; massive; firm; common (20 percent) medium prominent brownish yellow (10YR 6/8) iron concentrations; very strongly acid (pH 5.0); clear smooth boundary.
C2—36 to 45 inches; dark yellowish brown (10YR 4/4) sandy loam; massive; friable; many (24 percent) coarse prominent gray (10YR 5/1) iron depletions; very strongly acid (pH 5.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: Within a depth of 6 inches
Content of coarse fragments: 0 to 14 percent, by volume, throughout the profile; mostly gneissic gravel
Reaction: Very strongly acid to slightly acid

O horizon (if present):
Type of organic soil material—slightly decomposed or moderately decomposed plant material
A horizon:
Color—hue of 7.5YR to 2.5Y, value of 2 or 3, and chroma of 1or 2
Texture—silt loam or very fine sandy loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray
Bg horizon:
Color—hue of 7.5YR to 10Y, value of 4 to 7, and chroma of 1or 2
Texture—silt loam, very fine sandy loam, or silty clay loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray
BC horizon (if present):
Color—hue of 7.5YR to 10Y, value of 4 to 7, and chroma of 1or 2
Texture—silt loam, very fine sandy loam, loam, or silty clay loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray
C horizon:
Color—hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 1 to 4
Texture—silt loam, loam, or sandy loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray; black manganese stains

Note: Canandaigua soils in the Bronx River Watershed are more acid than typical for the series, and may have thicker layers of sandy loam in the substratum.

Centralpark series

Landscape: Urbanized till plain
Land use: Recreational Parkland, specifically Pelham Parkway Park and Bronx Park East
Landform: Anthropogenic fill plain
Parent material: Human-transported loamy materials with 35 percent or more rock fragments
Drainage class: Well drained
Permeability: Moderately slow to moderate in the surface, moderate in the subsoil and substratum
Saturated hydraulic conductivity: Moderately high throughout
Slope range: 0 to 60 percent
Associated soils: Greenbelt, Laguardia
Taxonomic class: Loamy-skeletal, mixed, superactive, mesic Typic Dystrudepts

Typical Pedon

Centralpark sandy loam, in an area of Centralpark gravelly sandy loam, 0 to 3 percent slopes, in an island of turf-covered, partially-wooded parkland on the Pelham Parkway in Bronx County, New York; 192 feet southeast (130 degrees) from the northeast corner of Bronxwood Avenue and Pelham Parkway; USGS Flushing, New York topographic quadrangle; lat. 40º 51' 25.59" N. and long. 73º 51' 47.82" W.

^A1—0 to 1.5 inches; very dark brown (10YR 2/2) sandy loam; weak medium subangular blocky and weak medium granular structure; friable; common very fine roots; moderately acid (pH 5.6); abrupt smooth boundary.

^A2—1.5 to 4.5 inches; very dark grayish brown (10YR 3/2) sandy loam; weak medium subangular blocky structure; friable; common very fine and few fine roots; strongly acid (pH 5.2); clear smooth boundary.

^Bw—4.5 to 12 inches; 60 percent dark yellowish brown (10YR 4/4) and 40 percent yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; few very fine and few fine roots; 8 percent gravel-sized rock fragments; strongly acid (pH 5.2); clear smooth boundary.

^C—12 to 40 inches; brown (7.5YR 4/4) very flaggy coarse sandy loam; massive; friable; few very fine, few fine, and few medium roots; 30 percent channer-sized and 25 percent flagstone-sized rock fragments; very strongly acid (pH 5.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: More than 72 inches
Coarse fragment content: 0 to 50 percent, by volume, in the A horizon, 5 to 65 percent in the Bw horizon, and 35 to 85 percent in the C horizon; mostly gneissic gravel and cobbles; less than 10 percent artifacts
Reaction: Very strongly acid to slightly alkaline

^A horizon:
Color—hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 2 or 3
Texture—sandy loam, loam, silt loam
^Bw horizon:
Color—hue of 7.5YR to 2.5Y, value of 3 to 6, and chroma of 2 to 8
Texture—sandy loam, loam, silt loam
^C horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 2 to 8
Texture—loamy sand or sandy loam

Charlton series

Landscape: Till plain
Land use: Natural areas throughout the watershed
Landform: Upland
Parent material: Glacial till derived mainly from schist, gneiss, or granite
Drainage class: Well drained
Permeability: Moderate to moderately rapid throughout

Saturated hydraulic conductivity: Moderately high to high throughout
Slope range: 0 to 35 percent
Associated soils: Chatfield, Hollis, Tonawanda, Canandaigua
Taxonomic class: Coarse-loamy, mixed, active, mesic Typic Dystrudepts

Typical Pedon

Charlton loam, in an area of Chatfield-Charlton-Hollis complex, 0 to 8 percent slopes, rocky, in the New York Botanical Garden Native Forest in Bronx County, New York; 1800 feet west (274 degrees) of the northeast corner of Bronx Park East and Mace Avenue, 1400 feet east (90 degrees) from the apex of the conservatory dome, just east of foot path; USGS Central Park, New York topographic quadrangle; lat. 40° 51' 49.2264" N. and long. 73° 52' 36.7068" W.

A1—0 to 1.5 inches; black (10YR 2/1) loam, very dark brown (10YR 2/2) dry; strong fine and medium granular structure; friable; common fine roots; very strongly acid (pH 5.0); abrupt smooth boundary.
A2—1.5 to 5.5 inches; very dark grayish brown (10YR 3/2) loam, dark brown (10YR 3/3) dry; moderate medium granular structure; friable; many fine and medium roots; 3 percent gravel-sized rock fragments; very strongly acid (pH 5.0); clear smooth boundary.
BA—5.5 to 7.5 inches; 70 percent brown (10YR 4/3) and 30 percent dark brown (10YR 3/3) loam; moderate medium and coarse subangular blocky structure; friable; common fine and medium roots; 5 percent cobble-sized and 5 percent gravel-sized rock fragments; very strongly acid (pH 5.0); clear wavy boundary.
Bw1—7.5 to 19 inches; dark yellowish brown (10YR 4/6) stony fine sandy loam; moderate medium subangular blocky structure; friable; common medium and coarse roots; 20 percent stone-sized and 5 percent cobble-sized rock fragments; very strongly acid (pH 5.0); clear smooth boundary.
Bw2—19 to 37 inches; yellowish brown (10YR 5/6) fine sandy loam; moderate medium subangular blocky structure; friable; few medium roots; 3 percent cobble-sized and 5 percent gravel-sized rock fragments; very strongly acid (pH 4.9); clear smooth boundary.
BC—37 to 45 inches; light yellowish brown (10YR 6/4) loam; weak medium subangular blocky and weak medium granular structure; friable; 5 percent cobble-sized and 5 percent gravel-sized rock fragments; very strongly acid (pH 4.8).

Range in characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: More than 72 inches
Coarse fragment content: 0 to 40 percent, by volume, in the A horizon, and 5 to 40 percent below; mostly gneissic gravel and cobbles
Reaction: Very strongly acid to moderately acid

O horizon (if present):
Type of organic soil material—slightly decomposed or moderately decomposed plant material

A horizon:
Color—hue of 10YR, value of 2 or 3, and chroma of 1 to 3
Texture—sandy loam, fine sandy loam, or loam
BA horizon (if present):
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4
Texture—sandy loam or loam
Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 or 6
Texture—sandy loam, fine sandy loam, or loam
BC horizon (if present):
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 or 6
Texture—sandy loam, fine sandy loam, or loam
C horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 6
Texture—loamy sand or sandy loam

Chatfield series

Landscape: Till plain
Land use: Natural areas throughout the watershed
Landform: Upland
Parent material: Glacial till derived mainly from schist, gneiss, or granite
Drainage class: Well drained
Permeability: Moderate to moderately rapid throughout
Saturated hydraulic conductivity: Moderately high to high throughout
Slope range: 0 to 35 percent
Associated soils: Hollis, Chatfield, Tonawanda, Canandaigua
Taxonomic class: Coarse-loamy, mixed, superactive, mesic Typic Dystrudepts

Typical Pedon

Chatfield loam, in an area of Chatfield-Charlton-Hollis complex, 0 to 8 percent slopes, rocky, in the New York Botanical Garden Native Forest in Bronx County, New York; 1800 feet west (274 degrees) of the northeast corner of Bronx Park East and Mace Avenue, 1400 feet east (90 degrees) from the apex of the conservatory dome, just east of foot path; USGS Central Park, New York topographic quadrangle; lat. 40° 51' 49.5354" N. and long. 73° 52' 36.8142" W.

A1—0 to 1.5 inches; black (10YR 2/1) loam, very dark grayish brown (10YR 3/2) dry; strong medium granular structure; friable; common very fine and fine roots; 7 percent gravel-sized rock fragments; very strongly acid (pH 4.8); abrupt smooth boundary.

A2—1.5 to 7 inches; dark brown (10YR 3/3) loam, very dark grayish brown (10YR 3/2) dry; moderate medium and coarse granular structure; friable; common fine roots; 6 percent gravel-sized rock fragments; very strongly acid (pH 4.7); clear wavy boundary.
Bw—7 to 25 inches; dark yellowish brown (10YR 4/6) stony fine sandy loam; moderate medium subangular blocky structure; friable; 15 percent stone-sized, 5 percent cobble-sized, and 7 percent gravel-sized rock fragments; very strongly acid (pH 4.8); abrupt wavy boundary.
R—25 inches; hard schist bedrock.

Range in Characteristics

Depth to bedrock: 20 to less than 40 inches
Depth to seasonal high water table: More than 72 inches
Coarse fragment content: 2 to 10 percent, by volume, in the A horizon and 2 to 30 percent below
Reaction: Very strongly acid to moderately acid

O horizon (if present):
Type of organic soil material—slightly decomposed or moderately decomposed plant material
A horizon:
Color—hue of 10YR, value of 2 or 3, and chroma of 1 to 3
Texture—sandy loam, fine sandy loam, or loam
BA horizon (if present):
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4
Texture—sandy loam, fine sandy loam or loam
Bw horizon:
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 4 or 6
Texture—sandy loam, fine sandy loam, or loam
C horizon (if present):
Color—hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4
Texture—loamy sand or sandy loam

Chatfield, recreational parkland phase

Landscape: Till plain
Land use: Recreational parkland areas throughout the watershed
Landform: Upland
Parent material: Glacial till derived mainly from schist, gneiss, or granite
Drainage class: Well drained
Permeability: Moderately slow to moderate in the surface, moderate to moderately rapid in the subsoil and substratum
Saturated hydraulic conductivity: Moderately high in the surface, moderately high to high in the subsoil and substratum
Slope range: 0 to 15 percent
Taxonomic class: Coarse-loamy, mixed, superactive, mesic Typic Dystrudepts

Typical Pedon

Chatfield fine sandy loam, in an area of Chatfield-Hollis-Greenbelt complex, 0 to 8 percent slopes, rocky, recreational parkland phase, in a turf-covered area of Bronx Park East near Mace Avenue; USGS Flushing, New York topographic quadrangle; lat. 40º 51' 48.22" N. and long. 73º 52' 14.77" W.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) fine sandy loam; moderate medium granular structure; friable; many fine and few medium roots; 2 percent gravel-sized rock fragments; strongly acid (pH 5.5); clear smooth boundary.
Bw—4 to 22 inches; brown (7.5YR 4/4) fine sandy loam; moderate medium subangular blocky structure; friable; common fine, common medium, and few coarse roots; 8 percent gravel-

sized and 5 percent cobble-sized rock fragments; moderately acid (pH 5.8); abrupt wavy boundary.
R—22 inches; hard schist bedrock.

Range in Characteristics

Depth to bedrock: 20 to less than 40 inches
Depth to seasonal high water table: More than 72 inches
Coarse fragment content: 0 to 10 percent, by volume, in the A horizon and 2 to 30 percent below
Reaction: Strongly acid to neutral

O horizon (if present):
Type of organic soil material—slightly decomposed or moderately decomposed plant material
A horizon:
Color—hue of 10YR, value of 3, and chroma of 2
Texture—sandy loam, fine sandy loam, or loam
BA horizon (if present):
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4
Texture—sandy loam, fine sandy loam, or loam
Bw horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 4 or 6
Texture—sandy loam, fine sandy loam, or loam
C horizon (if present):
Color—hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4
Texture—loamy sand or sandy loam

Fluvaquentic Endoaquolls

Landscape: Alluvial plain
Land use: Natural areas along the river
Landform: Flood plain
Parent material: Alluvial deposits
Drainage class: Poorly drained
Permeability: Moderate to rapid throughout
Saturated hydraulic conductivity: Moderately high to high throughout
Slope range: 0 to 3 percent
Associated soils: Fluventic Hapludolls, Limerick, Holderton
Taxonomic class: Fluvaquentic Endoaquolls

Typical Pedon

Fluvaquentic Endoaquolls, in an area of Fluvaquentic Endoaquolls, 0 to 3 percent slopes, frequently flooded, on a partially wooded alluvial island of the Bronx River in the Bronx Zoo in Bronx County, New York; 520 feet south (104 degrees) of the southern corner of the main northern Bronx Zoo parking lot; USGS Flushing, New York topographic quadrangle; lat. 40° 51’ 4.0” N. and long. 73° 52’ 25.4” W.

A1—0 to 10 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; weak granular structure; friable; slightly alkaline (pH 7.6); clear smooth boundary.
A2—10 to 13 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (2.5Y 4/2) dry; common (10 percent) medium faint black (2.5Y 2.5/1) organic stains; weak coarse granular structure; friable; slightly alkaline (pH 7.4); clear smooth boundary. .
A3—13 to 16 inches; dark olive brown (2.5Y 3/2) loam, dark grayish brown (2.5Y 4/2) dry; friable; slightly alkaline (pH 7.5); clear smooth boundary.

A4—16 to 27 inches; black (2.5Y 2.5/1); loam; common (8 percent) fine prominent dark brown (7.5YR 3/4) concentrations; massive; friable; slightly alkaline (pH 7.6); clear smooth boundary.
A5—27 to 40 inches; black (2.5Y 2.5/1) sandy loam; massive; friable; 13 percent gravel-sized wood fragments; slightly alkaline (pH 7.6).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: Within a depth of 18 inches
Coarse fragment content: 0 to 14 percent, by volume, throughout the profile; mostly gneissic and quartzose gravel and wood fragments
Reaction: Slightly acid to moderately alkaline

O horizon (if present):
Type of organic soil material—slightly decomposed or moderately decomposed plant material
A horizon:
Color—hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 or 2
Texture—silt loam, loam, fine sandy loam, sandy loam or loamy sand
Redoximorphic features (if they occur)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray
C horizon (if present):
Color—hue of 10YR to 5Y, value of 2 to 6, and chroma of 1 to 6
Texture—silt loam, loam, fine sandy loam, sandy loam, loamy sand, or sand
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray

Fluventic Hapludolls

Landscape: Alluvial plain
Land use: Natural areas along the river
Landform: Flood plain
Parent material: Alluvial deposits
Drainage class: Moderately well drained
Permeability: Moderate to rapid throughout
Saturated hydraulic conductivity: Moderately high to high throughout
Slope range: 0 to 3 percent
Associated soils: Fluvaquentic Endoaquolls, Holderton, Limerick
Taxonomic class: Fluventic Hapludolls

Typical Pedon

Fluventic Hapludolls, in an area of Fluventic Hapludolls, 0 to 3 percent slopes, frequently flooded on a wooded alluvial island of the Bronx River in Bronx County, New York; north of the New York Botanical Garden, 560 feet east (94 degrees) from the southeast corner of the intersection of Dr. Theodore Kazimiroff Boulevard and the northernmost entrance road to the Garden; USGS Flushing, New York topographic quadrangle; lat. 40° 52’05.0” N and long. 73° 52’26.3” W.

A1—0 to 4 inches; very dark gray (2.5Y 3/1) silt loam, dark grayish brown (2.5Y 4/2) dry; moderate fine and medium

granular structure; friable; neutral (pH 7.0); clear smooth boundary.
A2—4 to 17 inches very dark grayish brown (2.5Y 3/2) silt loam, dark grayish brown (2.5Y 4/2) dry; moderate fine and medium granular structure; friable; neutral (pH 7.1); clear smooth boundary.
C1—17 to 28 inches; brown (10YR 4/3); silt loam; massive; friable; common (5 percent) medium distinct strong brown (7.5YR 4/6) concentrations; slightly alkaline (pH 7.6); gradual smooth boundary.
C2—28 to 40 inches; brownish yellow (10YR 6/8); silt loam; massive; friable; many (35 percent) medium prominent light brownish gray (10YR 6/2) depletions; slightly alkaline (pH 7.6).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 18 to 40 inches
Coarse fragment content: 0 to 14 percent, by volume, throughout the profile; mostly gneissic and quartzose gravel and wood fragments
Reaction: Moderately acid to moderately alkaline

O horizon (if present):
Type of organic soil material—slightly decomposed or moderately decomposed plant material
A horizon:
Color—hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 to 6
Texture—silt loam, loam, fine sandy loam, sandy loam or loamy sand
C horizon (if present):
Color—hue of 10YR to 2.5Y, value of 4 to 6, and chroma of 2 to 8
Texture—silt loam, loam, fine sandy loam, sandy loam, loamy sand, or sand
Redoximorphic features (if present)—iron and concentrations in shades of brown and yellow; iron depletions in shades of gray

Greenbelt series

Landscape: Urbanized till plain
Land use: Parkland, residential
Landform: Anthropogenic fill plain
Parent material: Human-transported loamy materials
Drainage class: Well drained
Permeability: Moderately slow to moderate in the surface, moderate in the subsoil and substratum
Saturated hydraulic conductivity: Moderately high throughout
Slope range: 0 to 80 percent
Associated soils: Centralpark, Laguardia
Taxonomic class: Coarse-loamy, mixed, active, mesic Typic Dystrudepts

Typical Pedon

Greenbelt sandy loam, in an area of Greenbelt sandy loam, 0 to 3 percent slopes, in Bronx Park East in Bronx County, New York; 158 feet south (210 degrees) from the southwest corner of the intersection of Bronx Park East and Rosewood Avenue, a turf-covered area between a playground and an anthropogenic escarpment; USGS Flushing, New York topographic quadrangle; lat. 40º 52' 22.10" N. and long. 73º 52' 14.48" W.

^A1—0 to 1 inches; very dark grayish brown (10YR 3/2) sandy loam; weak medium granular structure; friable; common very fine and fine roots; 3 percent gravel-sized rock fragments; slightly acid (pH 6.2); abrupt smooth boundary.

^A2—1 to 4.5 inches; very dark grayish brown (10YR 3/2) sandy loam; moderate medium granular and moderate coarse subangular blocky structure; friable; common fine roots; 3 percent gravel-sized rock fragments; slightly acid (pH 6.2); clear smooth boundary.
^Bw1—4.5 to 13 inches; dark yellowish brown (10YR 4/4) cobbly sandy loam; weak very thick platy structure; firm; common medium roots; 10 percent gravel-sized and 7 percent cobble-sized rock fragments; slightly acid (pH 6.1); abrupt smooth boundary.
^Bw2—13 to 15 inches; olive brown (2.5Y 4/3) very fine sandy loam; moderate thin platy structure; friable; common medium and fine, and few very fine roots; neutral (pH 7.0); abrupt smooth boundary.
^Bw3—15 to 25 inches; dark yellowish brown (10YR 4/4) very stony fine sandy loam; moderate very thick platy structure; firm; 17 percent stone-sized, 12 percent cobble-sized, and 8 percent gravel-sized rock fragments; neutral (pH 6.6); gradual smooth boundary.
^C—25 to 45 inches; 50 percent yellowish brown (10YR 5/6) and 50 percent brown (10YR 4/3) cobbly fine sandy loam; weak thick platy structure; friable; 12 percent cobble-sized and 8 percent gravel-sized rock fragments; neutral (pH 6.6).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: More than 72 inches
Coarse fragment content: 0 to 14 percent, by volume, in the A horizon and 0 to 34 percent below; less than 10 percent artifacts
Reaction: Strongly acid to slightly alkaline

^A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4
Texture—loam, fine sandy loam, or sandy loam
^Bw horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 2 to 8
Texture—loam, fine sandy loam, or sandy loam
^C horizon:
Color—hue of 10YR, value of 3 to 6, and chroma of 3 to 8
Texture—loam, fine sandy loam, sandy loam or loamy sand

Greenbelt, cemetery phase, very deep water table

Landscape: Urbanized till plain
Land use: Cemetery
Landform: Anthropogenic fill plain
Parent material: Human-transported loamy materials
Drainage class: Well drained, very deep water table
Permeability: Moderate to moderately rapid in the surface and subsoil, moderate to rapid in the substratum
Saturated hydraulic conductivity: Moderately high to high throughout
Slope range: 0 to 35 percent

Taxonomic class: Coarse-loamy, mixed, active, mesic Typic Dystrudepts

Typical Pedon

Greenbelt loam, in an area of Greenbelt-Pavement & buildings complex, cemetery phase, 3 to 8 percent slopes, very deep water table in Woodlawn Cemetery in Bronx County, New York; near the intersection of North Border Ave near Birch Ave; USGS Mount Vernon, New York topographic quadrangle; lat. 40º 53' 43.64" N and long. 73º 52' 21.39" W.

^A—0 to 5.5 inches; very dark grayish brown (10YR 3/2) loam; strong medium granular structure; friable; common very fine, fine and medium roots; 2 percent gravel-sized rock fragments; moderately acid (pH 5.6); clear wavy boundary.

^BA—5.5 to 14 inches; dark yellowish brown (10YR 4/4) sandy loam; moderate medium granular and weak medium subangular blocky structure; friable; few coarse, many medium, and few very fine roots; 3 percent gravel-sized rock fragments; moderately acid (pH 5.8); clear wavy boundary.

^Bw1—14 to 28 inches; dark yellowish brown (10YR 4/6) sandy loam; weak coarse subangular blocky structure; friable; few very coarse, common coarse and medium, and few very fine roots; 4 percent gravel-sized rock fragments; strongly acid (pH 5.2); clear wavy boundary.

^Bw2—28-35 inches; dark yellowish brown (75 percent 10YR 3/4 and 25 percent 10YR 4/6) loam; moderate medium granular and weak medium subangular blocky structure; friable; common medium and fine and few very fine roots; 4 percent gravel-sized rock fragments; strongly acid (pH 5.1); gradual wavy boundary.

^C—35 to 50 inches; dark yellowish brown (10YR 4/6) loam; massive; friable; 5 percent gravel-sized rock fragments; strongly acid (pH 5.1).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: More than 60 inches
Coarse fragment content: 0 to 30 percent, by volume, throughout the profile; mostly gneissic gravel; less than 10 percent artifacts
Reaction: Very strongly acid to slightly alkaline

^A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4
Texture—loam, fine sandy loam, or sandy loam
^BA horizon (if present):
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4
Texture—loam, fine sandy loam, or sandy loam
^Bw horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 to 6

Texture—loam, fine sandy loam, or sandy loam

^C horizon:

Color—hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 2 to 6

Texture—loam, fine sandy loam, sandy loam, loamy sand, or sand

Greenbelt, cemetery phase, deep water table

Landscape: Urbanized till plain
Land use: Cemetery
Landform: Anthropogenic fill plain
Parent material: Human-transported loamy materials
Drainage class: Well drained, deep water table
Permeability: Moderate to moderately rapid in the surface and subsoil, moderate to rapid in the substratum
Saturated hydraulic conductivity: Moderately high to high throughout
Slope range: 0 to 3 percent
Taxonomic class: Coarse-loamy, mixed, active, mesic Typic Dystrudepts

Typical pedon

Greenbelt loam, in an area of Greenbelt-Pavement & buildings complex, cemetery phase, 0 to 3 percent slopes, deep water table in Woodlawn Cemetery in Bronx County, New York; southwest of Woodlawn Lake, about 300 feet southeast of the intersection of Spruce Avenue and Observatory Avenue, just northwest of Matthieson Mausoleum; USGS Mount Vernon, New York topographic quadrangle; lat. 40º 53' 32.43" N and long. 73º 52' 13.57" W.

^A—0 to 9 inches; very dark grayish brown (10YR 3/2) loam; moderate medium granular structure; friable; many fine roots; moderately acid (pH 5.7); clear smooth boundary.

^Bw1—9 to 24 inches; yellowish brown (10YR 5/4) loam; moderate medium subangular blocky structure; friable; 20 percent very dark grayish brown (10YR 3/2) worm channels; moderately acid (pH 5.8); clear smooth boundary.

^Bw2—24 to 32 inches; dark yellowish brown (10YR 4/4) sandy loam; moderate medium subangular blocky structure; friable; moderately acid (pH 5.9); clear smooth boundary.

^2C1—32 to 36 inches; brown (10YR 4/3) sand; single grain; very friable; moderately acid (pH 6.0); clear smooth boundary.

^3C2—37 to 50 inches; dark yellowish brown (10YR 4/6) sandy loam; friable; common (6 percent) medium distinct pale brown (10YR 6/3) and few (2 percent) medium distinct light gray (10YR 7/2) iron depletions; moderately acid (pH 6.0); clear smooth boundary.

^3C3—50 to 60 inches; dark yellowish brown (10YR 4/6) sandy loam; friable; common (12 percent) medium distinct light gray (10YR 7/2) iron depletions; slightly acid (pH 6.2).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 40 to 60 inches
Coarse fragment content: 0 to 14 percent, by volume, throughout the profile; mostly gneissic gravel; less than 10 percent artifacts
Reaction: Very strongly acid to slightly alkaline

^A horizon:

Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4

Texture—loam or sandy loam

^Bw horizon:

Color—hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 3 to 6

Texture—loam or sandy loam

^C horizon:

Color—hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 2 to 6
Texture—loam, sandy loam, loamy sand, or sand
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray

Holderton series

Landscape: Alluvial plain
Land use: Natural areas along the river
Landform: Flood plain
Parent material: Alluvial deposits
Drainage class: Somewhat poorly drained
Permeability: Moderate to moderately rapid throughout
Saturated hydraulic conductivity: Moderately high to high throughout
Slope range: 0 to 3 percent
Associated soils: Pootatuck, Limerick
Taxonomic class: Coarse-loamy, mixed, active, nonacid, mesic Mollic Endoaquepts

Typical Pedon

Holderton silt loam, in an area of Holderton silt loam, 0 to 3 percent slopes, occasionally flooded, in Bronx County, New York; 450 feet east (74 degrees) of the northeast corner of the intersection of 204th street and the MetroNorth railroad line; USGS Central Park, New York topographic quadrangle; lat. 40° 52' 15.40" N. and long. 73° 52' 28.57" W.

A1—0 to 4 inches; very dark gray (7.5YR 3/1) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular and weak fine subangular blocky structure; friable; common very fine and few fine roots; common (5 percent) fine distinct dark reddish brown (5YR 3/4) concentrations; moderately acid (pH 6.0); very abrupt smooth boundary.

A2—4 to 11 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; friable (slightly brittle) ; few very fine, few fine, many medium, common coarse, and few very coarse roots; common (7 percent) fine distinct yellowish red (5YR 4/6) concentrations; moderately acid (pH 6.0); clear smooth boundary.

Bw1—11 to 22 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium subangular blocky structure; friable; few very fine, few fine, and common medium roots; common (10 percent) medium distinct dark grayish brown (10YR 4/2) depletions; moderately acid (pH 5.8); clear smooth boundary.

Bw2—22 to 31 inches; yellowish brown (10YR 5/4) loam; weak coarse subangular blocky structure; friable (slightly brittle); few very fine, few fine, and few medium roots; common (12 percent) medium distinct light brownish gray (10YR 6/2) depletions and few (1 percent) strong brown (7.5YR 5/6) concentrations; moderately acid (pH 5.9); gradual smooth boundary.

C1—31 to 45 inches; 40 percent dark grayish brown (10YR 4/2) loam; massive structure; firm (slightly brittle); few very fine roots; many (35 percent) fine distinct dark brown (7.5YR 3/4) concentrations and many (25 percent) medium faint dark gray (10YR 4/1) depletions; moderately acid (pH 5.8).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 6 to 18 inches
Coarse fragment content: 0 to 14 percent, by volume, throughout the profile; mostly gneissic gravel
Reaction: Strongly acid to slightly acid

O horizon (if present):
Type of organic soil material—slightly decomposed or moderately decomposed plant material
A horizon:
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 1 to 3
Texture—silt loam or loam
B horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam, loam, fine sandy loam or sandy loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray
C horizon:
Color—hue of 10YR, value of 4 to 7, and chroma of 1 to 6
Texture—silt loam, loam, fine sandy loam, sandy loam, or loamy sand
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; and iron depletions in shades of gray

Note: Holderton soils in the Bronx River Watershed generally have thicker surface layers than the taxonomic limits, and are taxadjuncts to the series. They are similar to Holderton soils in their use and management.

Hollis series

Landscape: Till plain
Land use: Natural areas throughout the watershed
Landform: Upland
Parent material: Glacial till derived mainly from schist, gneiss, or granite
Drainage class: Well drained
Permeability: Moderate to moderately rapid throughout
Saturated hydraulic conductivity: Moderately high to high throughout
Slope range: 0 to 35 percent
Associated soils: Chatfield, Charlton
Taxonomic class: Loamy, mixed, active, mesic Lithic Dystrudepts

Typical Pedon

Hollis loam, in an area of Chatfield-Charlton-Hollis complex, 0 to 8 percent slopes, rocky, in the New York Botanical Garden Native Forest in Bronx County, New York; 1800 feet west (274 degrees) of the northeast corner of Bronx Park East and Mace Avenue, 1400 feet east (90 degrees) from the apex of the conservatory dome, just east of foot path; USGS Central Park, New York topographic quadrangle; lat. 40° 51' 49.5354" N. and long. 73° 52' 36.8142" W.

A1—0 to 1.5 inches; black (10YR 2/1) loam, very dark brown (10YR 2/2) dry; strong medium granular structure; friable; common very fine roots; 11 percent gravel-sized rock fragments; very strongly acid (pH 5.0); abrupt smooth boundary.
A2—1.5 to 6.5 inches; dark brown (10YR 3/3) fine sandy loam, very dark grayish brown (10YR 3/2) dry; moderate medium granular structure; friable; common very fine, fine, and medium and few very coarse roots; 3 percent cobble-sized and 2 percent gravel-sized rock fragments; very strongly acid (pH 4.9); clear wavy boundary.
Bw—6.5 to 16 inches; dark yellowish brown (10YR 4/4) stony fine sandy loam; moderate medium subangular blocky structure; friable; 15 percent stone-sized, 10 percent cobble-sized and 5 percent gravel-sized rock fragments; very strongly acid (pH 4.8); abrupt wavy boundary.
R—16 inches; hard schist bedrock.

Range in Characteristics

Depth to bedrock: 10 to less than 20 inches
Depth to seasonal high water table: More than 72 inches
Coarse fragment content: 0 to 14 percent, by volume, in the A horizon and 4 to 35 percent in the Bw horizon; mostly gneissic gravel and cobbles
Reaction: Very strongly acid to moderately acid

O horizon (if present):
Type of organic soil material—slightly decomposed or moderately decomposed plant material
A horizon:
Color—hue of 10YR, value of 2 or 3, and chroma of 1 to 3
Texture—loam or fine sandy loam
Bw horizon:
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 4 or 6
Texture—loam, fine sandy loam, or sandy loam

Hollis, recreational parkland phase

Landscape: Till plain
Land use: Recreational park areas throughout the watershed
Landform: Upland
Parent material: Glacial till derived mainly from schist, gneiss, or granite
Drainage class: Well drained
Permeability: Moderately slow to moderate in the surface, moderate to moderately rapid in the subsoil and substratum
Saturated hydraulic conductivity: Moderately high in the surface, moderately high to high in the subsoil and substratum

Slope range: 0 to 15 percent
Taxonomic class: Loamy, mixed, active, mesic Lithic Dystrudepts

Typical Pedon

Hollis fine sandy loam, in an area of Chatfield-Greenbelt-Hollis complex, 8 to 15 percent slopes, very rocky, recreational parkland phase, in Bronx Park East between Waring Avenue and Thwaites Place; USGS Flushing, New York topographic quadrangle; lat. 40º 51' 35.96" N. and long. 73º 52' 15.68" W.

A1--0 to 3 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine and medium granular structure; friable; many fine and few medium roots; 1 percent gravel-sized rock fragments; strongly acid (pH 5.2); clear smooth boundary.
A2--3 to 6.5 inches; dark brown (10YR 3/3) fine sandy loam; weak medium granular structure; friable; many very fine, many fine, and common medium roots; 6 percent gravel-sized and 6 percent channer-sized rock fragments; very strongly acid (pH 5.0); clear smooth boundary.
BA—6.5 to 10.5 inches; 60 percent dark yellowish brown (10YR 4/6) and 40 percent dark brown (10YR 3/3) sandy loam; moderate medium subangular blocky structure; friable; common very fine, fine, and medium roots; 10 percent channer-sized and 2 percent flagstone-sized rock fragments; strongly acid (pH 5.2); clear smooth boundary.
Bw—10.5 to 18 inches; strong brown (7.5YR 4/6) sandy loam; moderate medium subangular blocky structure; friable; few very fine, common fine, common medium, and few coarse roots; 5 percent gravel-sized, 5 percent channer-sized, and 2 percent flagstone-sized rock fragments; strongly acid (pH 5.1); abrupt smooth boundary.
R—18 inches; hard schist bedrock.

Range in Characteristics

Depth to bedrock: 10 to less than 20 inches
Depth to seasonal high water table: More than 72 inches
Coarse fragment content: 0 to 14 percent, by volume, throughout the profile; mostly gneissic gravel and cobbles
Reaction: Strongly acid to neutral

A horizon:
Color—hue of 10YR, value of 2 or 3, and chroma of 1 to 3
Texture—loam or fine sandy loam
BA horizon (If present):
Color—hue of 10YR, value of 3 or 4, and chroma of 3 or 6
Texture—fine sandy loam or sandy loam
Bw horizon:
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 4 or 6
Texture—loam, fine sandy loam, or sandy loam

Laguardia series

Landscape: Urbanized till plain
Land use: Parkland (Soundview Park); anthropogenic terrace along the Bronx River Parkway
Landform: Anthropogenic fill plain

Parent material: Human-transported loamy materials with 35 percent or more coarse fragments, including more than 10 percent artifacts
Drainage class: Well drained
Permeability: Moderately slow to moderate throughout
Saturated hydraulic conductivity: Moderately high throughout
Slope range: 0 to 35 percent
Associated soils: Greenbelt, Centralpark
Taxonomic class: Loamy-skeletal, mixed, active, nonacid, mesic Typic Udorthents

Typical Pedon

Laguardia sandy loam, in an area of Laguardia sandy loam, 0 to 3 percent slopes, in Soundview Park in Bronx County, New York; location needed

^A1—0 to 5 inches; very dark grayish brown (10YR 3/2) sandy loam; moderate fine granular structure; friable; few fine roots; 7 percent gravel-sized rock fragments; slightly alkaline (pH 7.4); clear smooth boundary.
^Au2—5 to 12 inches; dark grayish brown (10YR 4/2) gravelly sandy loam; weak medium subangular blocky structure; friable; few fine roots; 3 percent cobble-sized rock fragments, 3 percent cobble-sized brick fragments, 7 percent gravel-sized rock fragments, and 3 percent gravel-sized glass fragments; slightly alkaline (pH 7.6); clear smooth boundary.
^Bwu1—12 to 18 inches; 90 percent brown (10YR 4/3) and 10 percent dark gray (10YR 4/1) sandy loam; moderate coarse subangular blocky structure; firm in place; 7 percent cobble-sized rock fragments and 3 percent cobble-sized brick fragments; slightly alkaline (pH 7.8); clear smooth boundary.
^Abu—18 to 19.5 inches; black (2.5Y 2.5/1) loam; moderate medium granular structure; friable; common fine, common medium, and few coarse roots; 6 percent gravel-sized glass fragments and 4 percent gravel-sized rock fragments; slightly alkaline (pH 7.8); abrupt smooth boundary.
^M—19.5 to 22.5 inches; discontinuous partially-rotten concrete layer; abrupt broken boundary.
2^Cu2—22.5 to 32 inches; dark brown (10YR 3/3) extremely cobbly sandy loam; weak coarse subangular blocky structure; friable; 20 percent cobble-sized rock fragments, 20 percent cobble-sized concrete fragments, 10 percent gravel-sized rock fragments, 5 percent gravel-sized glass fragments, and 5 percent gravel-sized concrete fragments; slightly alkaline (pH 7.8); clear smooth boundary.
3^Cu3—32 to 40 inches; very dark gray (10YR 3/1) very gravelly loamy sand; single grain; very friable; 50 percent gravel-sized coal slag fragments; moderately alkaline (pH 8.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: More than 72 inches

Coarse fragment content: 0 to 14 percent, by volume, in the A horizon, 0 to 60 percent in the Bw, and 10 to 80 percent in the C horizon; mostly human artifacts including brick, concrete, glass, coal combustion by-products, metal, and treated and untreated wood products
Reaction: Slightly acid to strongly alkaline

A horizon:
Color—hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 or 2
Texture—loam or sandy loam
Bw horizon (if present):
Color—hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 2 to 6
Texture—sandy loam
C horizon:
Color—hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 1 to 6
Texture—sandy loam or loamy sand

Laguardia, very stony surface phase

Landscape: Urbanized till plain
Land use: Parkland (Soundview Park); anthropogenic terrace along the Bronx River Parkway
Landform: Anthropogenic fill plain
Parent material: Human-transported loamy materials with 35 percent or more coarse fragments, including more than 10 percent artifacts
Drainage class: Well drained
Permeability: Moderate to moderately rapid in the surface, moderately slow to moderate in the substratum
Saturated hydraulic conductivity: Moderately high to high in the surface, moderately high in the substratum
Slope range: 0 to 35 percent
Associated soils: Greenbelt, Centralpark
Taxonomic class: Loamy-skeletal, mixed, active, nonacid, mesic Typic Udorthents

Typical Pedon

Laguardia sandy loam, an area of Laguardia sandy loam, 0 to 3 percent slopes, very stony, in Soundview Park in Bronx County, New York; 200 feet south (180 degrees) of the intersection of Boynton Avenue and Lafayette Avenue; USGS Central Park, New York topographic quadrangle; lat. 40º 49' 8.92" N and long. 73º 52' 33.96" W.

^A—0 to 5 inches; very dark brown (10YR 2/2) sandy loam; moderate fine granular structure; friable; few fine roots, common medium roots, and few very coarse roots; 2 percent gravel-sized rock fragments; slightly alkaline (pH 7.8); abrupt smooth boundary.

^Bw—5 to 8 inches; dark brown (10YR 3/3) sandy loam; weak medium sub-angular blocky structure; friable; few fine roots, common medium roots; 4 percent gravel-sized rock fragments; slightly alkaline (pH 7.4); abrupt smooth boundary.

2^Cu1—8 to 16 inches; very dark grayish brown (10YR 3/2) very gravelly loamy sand; weak fine and medium granular structure; very friable; few common and fine roots; 20 percent gravel-sized coal and coal slag fragments, 12 percent gravel-sized brick fragments, and 8 percent gravel-sized rock fragments; neutral (pH 7.3); clear wavy boundary.
3^Cu2—16 to 29 inches; 60 percent brown (10YR 4/3) and 40 percent dark grayish brown (10YR 4/2) extremely cobbly sandy loam; massive; firm in place; 10 percent stone-sized concrete fragments, 12 percent cobble-sized brick fragments, 8 percent cobble-sized asphalt fragments, 5 percent cobble-sized iron fragments, 12 percent gravel-sized brick fragments, 7 percent gravel-sized coal and coal slag fragments, and 6 percent gravel-sized natural rock fragments; moderately alkaline (pH 8.1); clear smooth boundary.
3^Cu3—29 to 36 inches; dark gray (10YR 4/1) extremely cobbly sandy loam; weak fine granular structure; friable; 5 percent brown (7.5YR 4/4) iron concentrations; 15 percent cobble-sized brick fragments, 15 percent cobble-sized concrete fragments, 12 percent channer-sized wood fragments, 12 percent gravel-sized coal and coal slag fragments, 4 percent gravel-sized brick fragments, and 4 percent gravel-sized rock fragments; moderately alkaline (pH 8.2); abrupt smooth boundary.
4^Ab—36 to 40 inches; black (10YR 2/1) gravelly sandy loam; massive; firm; 15 percent gravel-sized rock fragments; neutral (pH 6.8).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: More than 72 inches
Coarse fragment content: 0 to 14 percent, by volume, in the A horizon, 0 to 60 percent in the Bw, and 10 to 80 percent in the C horizon; mostly human artifacts including brick, concrete, glass, coal combustion by-products, metal, and treated and untreated wood products
Reaction: Slightly acid to strongly alkaline

A horizon:
Color—hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 or 2
Texture—loam or sandy loam
Bw horizon (if present):
Color—hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 2 to 6
Texture—sandy loam
C horizon:
Color—hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 1 to 6
Texture—sandy loam or loamy sand

Limerick series

Landscape: Alluvial plain
Land use: Natural areas along the river
Landform: Flood plain or stream terrace
Parent material: Alluvial deposits
Drainage class: Poorly drained
Permeability: moderate throughout
Saturated hydraulic conductivity: moderately high to high throughout
Slope range: 0 to 3 percent
Associated soils: Holderton, Pootatuck
Taxonomic class: Coarse-silty, mixed, active, nonacid, mesic Aeric Endoaquepts

Typical Pedon

Limerick loam, in an area of Limerick loam, 0 to 3 percent slopes, frequently ponded in Bronx County, New York; 400 feet southwest (228 degrees) from the southeast corner of Bronx Park

East and Burke Avenue; USGS Flushing, New York topographic quadrangle; lat. 40° 52’14.21" N. and long. 73° 52’17.36” W.

A—0 to 2.5 inches; black (10YR 2/1) loam; strong medium and fine granular structure; friable; common fine roots; moderately acid (pH 6.0); clear smooth boundary.

AB—2.5 to 6 inches; very dark gray (10YR 3/1) loam; moderate medium subangular blocky structure parting to moderate fine and medium granular; friable; many (22 percent) medium prominent dark brown (7.5YR 3/4) iron concentrations; moderately acid (pH 5.8); clear smooth boundary.

Bg1—6 to 11 inches; dark gray (10YR 4/1) fine sandy loam; moderate medium subangular blocky structure; friable; many (25 percent) medium prominent dark brown (7.5YR 3/4) iron concentrations and common (10 percent) medium distinct (10YR 5/2) iron depletions; moderately acid (pH 5.8); clear smooth boundary.

Bg2—11 to 15 inches; dark gray (10YR 4/1) silt loam; moderate medium subangular blocky structure; friable; common (12 percent) medium distinct dark yellowish brown (10YR 3/4) iron concentrations; moderately acid (pH 5.9); clear smooth boundary.

Bg3—15 to 26 inches; grayish brown (2.5Y 5/2) silt loam; moderate medium subangular blocky structure; friable; common (15 percent) fine and medium prominent dark yellowish brown (10YR 4/6) iron concentrations; moderately acid (pH 5.9); clear smooth boundary.

BC1—26 to 33 inches; brown (2.5Y 5/3) silt loam; massive; slightly firm in place; many (35 percent) coarse prominent dark yellowish brown (10YR 4/6) iron concentrations; strongly acid (pH 5.3); clear smooth boundary.

BC2—33 to 45 inches; brown (2.5Y 5/3) fine sandy loam; weak medium subangular blocky structure; many (30 percent) coarse prominent yellowish red (5YR 4/6) iron concentrations; strongly acid (pH 5.3).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: Within a depth of 6 inches
Coarse fragment content: 0 to 14 percent, by volume, throughout the entire profile; mostly rounded gneissic gravel
Reaction: Strongly acid to neutral

O horizon (if present):
Type of organic soil material—slightly decomposed or moderately decomposed plant material

A horizon:
Color—Hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 to 6
Texture—loam or silt loam

Redoximorphic features (if they occur)—iron concentrations in shades of brown, yellow, and red; and black manganese stains

AB horizon (if present):

Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4

Texture—loam or silt loam

Redoximorphic features (if present)—iron concentrations in shades of brown, yellow, and red; black manganese stains; and iron depletions in shades of gray

Bg horizon:

Color—hue of 10YR, 2.5Y or 5Y, value of 2 to 7, and chroma of 1 or 2

Texture—silt loam or very fine sandy loam

Redoximorphic features (if present)—iron concentrations in shades of brown, yellow, and red; black manganese stains; and iron depletions in shades of gray

BC horizon (if present):

Color—hue of 10YR, 2.5Y or 5Y, value of 2 to 7, and chroma of 1 to 8

Texture—silt loam, very fine sandy loam, or fine sandy loam

Redoximorphic features (if present)—iron concentrations in shades of brown, yellow, and red; black manganese stains; and iron depletions in shades of gray

Note: Limerick soils in the Bronx River Watershed generally have brighter colors (chroma greater than 2) in the lower B horizon than the taxonomic limits, and are taxadjuncts to the series. This may result from these soils wetting from the top down, and retaining that wetness in the upper profile. They also have thicker layers of fine sandy loam in the BC horizons than typical. They are similar to Limerick soils in their use and management.

Natchaug series

Landscape: Till plain

Land use: Natural areas in the New York Botanical Garden

Landform: Upland depression

Parent material: Woody and herbaceous organic materials overlying loamy deposits

Drainage class: Very poorly drained

Permeability: Rapid in the organic layers, moderate to moderately rapid in the mineral material

Saturated hydraulic conductivity: High to very high in the organic layers, moderately high to high in the mineral layers

Slope range: 0 percent

Associated soils: Charlton, Chatfield, Hollis

Taxonomic class: Loamy, mixed, euic, mesic Terric Haplosaprists

Typical Pedon

Natchaug muck, in an area of Natchaug muck, 0 percent slopes in the New York Botanical Garden, in Bronx County, New York; 1100 feet east (128 degrees) of the conservatory dome; USGS Central Park quadrangle; lat. 40º 51' 43.18" N. and long. 73º 52' 44.01" W.

Oa1—0 to 9 inches; very dark brown (10YR 2/2) muck; 2 percent fibers, 0 percent rubbed; massive; very friable; 12 percent coarse straw fragments; slightly acid (pH 6.2); clear smooth boundary.

Oa2—9 to 20 inches; very dark brown (10YR 2/2) muck; 17 to 18 percent fibers, 2 percent rubbed; massive; very friable; slightly acid (pH 6.2); clear smooth boundary.

Oa3—20 to 26 inches; very dark gray (2.5Y 3/1) muck; 20 to 22 percent fibers, 2 percent rubbed; massive; very friable; moderately acid (pH 6.0); clear smooth boundary.

Oa4—26 to 32 inches; black (10YR 2/1) muck; 14 to 15 percent fibers, 2 percent rubbed; massive; very friable; moderately acid (pH 6.0); abrupt smooth boundary.

Cg1—32 to 38 inches; very dark grayish brown (10YR 3/2) silt loam; massive; friable; common (3 percent) fine distinct dark yellowish brown (10YR 4/6) iron concentrations; 2 percent coarse woody fragments and 1 percent gravel-sized rock fragments; slightly acid (pH 6.1); clear smooth boundary.

Cg2—38 to 50 inches; dark gray (10YR 4/1) silt loam; massive; friable; common (3 percent) fine distinct dark yellowish brown (10YR 4/6) iron concentrations; 5 percent coarse woody fragments and 1 percent gravel-sized rock fragments; slightly acid (pH 6.1).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: Within a depth of 6 inches
Coarse fragment content: 2 to 15 percent, by volume, throughout the entire profile; mostly woody fragments, and quartzose and gneissic gravel
Thickness of the organic horizons: 16 to 51 inches
Reaction: Strongly acid to neutral

Oa horizon:
Color—hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 or 2
Type of organic soil material—muck

C horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 1 or 2
Texture—silt loam or very fine sandy loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; black manganese stains

Olinville series

Landscape: Anthropogenically altered alluvial plains
Land use: Natural areas along the Bronx River
Landform: Flood plain
Parent material: Human-transported loamy materials over alluvial deposits
Drainage class: Moderately well drained
Permeability: Moderate to moderately rapid in the surface and subsoil, moderate to rapid in the substratum
Saturated Hydraulic Conductivity: Moderately high to high in the surface and subsoil, moderately high to very high in the substratum
Slope range: 0 to 3 percent
Associated soils: Suncook, Pootatuck, Holderton
Taxonomic class: Coarse-loamy, mixed, mesic Oxyaquic Eutrudepts

Typical Pedon

Olinville loam, in an area of Olinville loam, 0 to 3 percent slopes, occasionally flooded, in Bronx River Forest, in Bronx County, NY; 545 feet west of the intersection of Bronx Park East and Rosewood Avenue; USGS Flushing, New York topographic quadrangle; lat. 40° 52' 24 " N. and long. 73° 52' 20" W.

^A1—0 to 2.5 inches; very dark brown (10YR 2/2) loam, dark grayish brown (10YR 4/2) dry; strong fine and medium granular structure; friable; common fine roots; slightly acid (pH 6.5); clear smooth boundary.

^A2—2.5 to 10 inches; very dark grayish brown (10YR 3/2) loam, yellowish brown (10YR 5/4) dry; moderate fine and medium granular structure; friable; common fine, common medium, and common coarse roots; slightly acid (pH 6.3); clear wavy boundary.

^Bwu—10 to 20 inches; dark yellowish brown (10YR 4/6) sandy loam; moderate thick platy structure; friable; few medium and few coarse roots; common (4 percent) medium prominent dark reddish brown (5YR 3/4) iron concentrations on ped faces; 7 percent cobble-sized rock fragments and 3 percent gravel-sized coal fragments; slightly acid (pH 6.4); clear smooth boundary.

2Ab—20 to 24 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; friable (slightly firm in place); common (13 percent) medium prominent dark reddish brown (5YR 3/4) iron concentrations; slightly acid (pH 6.3); clear wavy boundary.

2ABb—24 to 28 inches; 70 percent dark grayish brown (10YR 4/2) and 30 percent dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky and moderate medium granular structure; friable; slightly acid (pH 6.5); clear wavy boundary.

2A’b—28 to 33 inches; very dark grayish brown (10YR 3/2) loam; moderate medium granular structure; friable; common (13 percent) medium distinct dark yellowish brown (10YR 4/6) iron concentrations; neutral (pH 6.7); clear wavy boundary.

2Bb—33 to 39 inches; brown (10YR 4/3) fine sandy loam; weak medium subangular blocky structure; friable; common (16 percent) dark grayish brown (10YR 4/2) iron depletions and common (9 percent) fine prominent strong brown (7.5YR 4/6) iron concentrations; neutral (pH 6.7); clear wavy boundary.

2BC—39 to 60 inches; 75 percent dark yellowish brown (10YR 4/6) and 25 percent dark brown (10YR 3/3) fine sandy loam; weak medium subangular blocky structure; slightly acid (pH 6.2).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 30 to 40 inches
Coarse fragment content: 0 to 35 percent, by volume, in the human-transported material horizons, with less than 10 percent artifacts; and 0 to 14 percent in the natural alluvium horizons, mostly quartzose and gneissic gravel
Reaction: Strongly acid to neutral

O horizon (if present):
Type of organic soils material—slightly decomposed or moderately decomposed plant material
^A horizon:
Color—hue of 7.5YR to 2.5 Y, value of 2 to 4, and chroma of 1 to 3
Texture—silt loam, loam, fine sandy loam or sandy loam
^Bw horizon:
Color—hue of 7.5YR to 2.5Y, value of 3 to 6, and chroma of 2 to 6
Texure—silt loam, loam, fine sandy loam, or sandy loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow
Ab horizon:
Color—hue of 7.5YR to 2.5Y, value of 3 to 6, and chroma of 2 to 6
Texture—silt loam, loam, fine sandy loam or sandy loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow
Bb horizon:
Color—hue of 10YR or 2.5Y, value of 2 to 6, and chroma of 2 to 6
Texture—silt loam, loam, fine sandy loam or sandy loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray
C horizon:

Color—hue of 10YR or 2.5Y, value of 3 to 7, and chroma of 1 to 6
Texture—silt loam, loam, sandy loam, loamy sand or sand
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray

Pootatuck series

Landscape: Alluvial plain
Land use: Natural areas along the river
Landform: Stream terrace
Parent material: Alluvial deposits
Drainage class: Moderately well drained
Permeability: Moderate to moderately rapid in the surface and subsoil, moderately rapid to rapid in the substratum
Saturated Hydraulic Conductivity: Moderately high to high throughout
Slope range: 0 to 8 percent
Associated soils: Suncook, Holderton, Olinville
Taxonomic class: Coarse-loamy, mixed, active, mesic Fluvaquentic Dystrudepts

Typical Pedon

Pootatuck loam, in an area of Pootatuck loam, 3 to 8 percent slopes, occasionally flooded, in Bronx County, New York; 566 feet west (260 degrees) from the southwest corner of Bullard Avenue and 239th Street; USGS Mount Vernon, New York topographic quadrangle; lat. 40° 54’06.3” N. and long. 73° 51’32.7” W.

A1—0 to 1.5 inches; very dark brown (10YR 2/2) loam; strong fine granular structure; friable; common fine roots; slightly acid (pH 6.2); abrupt smooth boundary.
A2—1.5 to 3 inches; very dark brown (10YR 2/2) loam; moderate medium granular structure; friable; common fine and few medium roots; 1 percent gravel-sized rock fragments; very strongly acid (pH 5.0); abrupt smooth boundary.
Bw1—3 to 20 inches; brown (10YR 4/3) sandy loam; weak medium subangular blocky structure; friable; very few fine, few medium, and common coarse roots; few (2 percent) fine prominent yellowish red (5YR 4/6) concentrations; 4 percent gravel-sized rock fragments; strongly acid (pH 5.2); clear smooth boundary.
Bw2—20 to 29 inches; brown (10YR 4/3) sandy loam; weak medium subangular blocky structure; friable; few medium and common coarse roots; common (4 percent) coarse distinct grayish brown (10YR 5/2) depletions, and common (7 percent) medium prominent strong brown (7.5YR 4/6) concentrations; 4 percent gravel-sized rock fragments; strongly acid (pH 5.2); clear smooth boundary.
C1—29 to 46 inches; dark grayish brown (10YR 4/2) sandy loam; massive; friable; few medium and common coarse roots; common (7 percent) medium prominent strong brown (7.5YR 5/6) concentrations; pockets (13 percent of the horizon) of dark grayish brown (2.5Y 4/2) very fine sandy loam with common (4 percent) fine prominent dark yellowish brown (10YR 4.6) concentrations, and pockets (3 percent of the horizon) of light gray (2.5Y 7/2) sand; 3 percent gravel-sized rock fragments; strongly acid (pH 5.2).
C2—46 to 60 inches; dark grayish brown (10YR 4/2) sandy loam; massive; very friable; common (15 percent) coarse prominent strong brown (10YR 3/4) concentrations; 3 percent gravel-sized rock fragments; moderately acid (pH 5.6).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 18 to 40 inches
Coarse fragment content: 0 to 14 percent, by volume, in the A and Bw horizons and 0 to 55 in the C horizons; mostly rounded gneissic gravel

Reaction: Very strongly acid to slightly acid

O horizon (if present):
Type of organic soil material—slightly decomposed or moderately decomposed plant material
A horizon:
Color—hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 to 4
Texture—loam, very fine sandy loam, fine sandy loam, or sandy loam
Bw horizon:
Color—hue of 10YR to 5Y, value of 3 to 6, and chroma of 3 to 6
Texture—fine sandy loam or sandy loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray
C horizon:
Color—hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 6
Texture—sandy loam, loamy sand, sand
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray

Note: Pootatuck soils in the Bronx River Watershed are found at slopes higher than typical for the series.

Rikers series

Landscape: Urbanized till plain
Land use: Railroad corridor
Landform: Anthropogenic fill mound and bed
Parent material: Human-transported materials with 35 percent or more coarse fragments (coal combustion byproducts)
Drainage class: Excessively drained
Permeability: Rapid throughout
Saturated Hydraulic Conductivity: High or very high throughout
Slope range: 0 to 60 percent
Associated soils: Greenbelt, Laguardia, Centralpark
Taxonomic class: Sandy-skeletal, mixed, mesic Typic Udorthents

Typical Pedon

Rikers very gravelly loamy sand, in an area of Rikers very gravelly loamy sand, 0 to 3 percent slopes, in Bronx County, New York; 322 feet west (280 degrees) from intersection of Bullard Avenue and Nereid Avenue, along the MetroNorth railroad line under the Nereid Avenue overpass; USGS Mount Vernon, New York topographic quadrangle; lat. 40º 54' 2.14" N. and long. 73º 51' 34.92" W.

^A—0 to 5 inches; very dark grayish brown (2.5Y 3/2) very gravelly loamy sand; single grain; loose; common fine and very fine roots; 30 percent gravel-sized coal slag and coal fragments; moderately alkaline (pH 8.2); clear smooth boundary.
^C—5 to 52 inches; 60 percent dark yellowish brown (10YR 4/4) and 40 percent black (10YR 2/1) extremely gravelly loamy sand; single grain; loose; 45 percent gravel-sized coal slag and coal fragments; moderately alkaline (pH 8.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: More than 72 inches
Coarse fragment content: 10 to 75 percent, by volume, throughout the entire profile; mostly subangular coal combustion by-products

Reaction: Strongly acid to moderately alkaline

A horizon:
Color—hue of 10YR, value of 2 or 3, and chroma of 1 to 3
Texture of the fine-earth fraction—loamy sand or sand
C horizon:
Color—hue of 10YR, value of 2 to 4, and chroma of 0 to 4 or is neutral with value of 2.5 to 4
Texture of the fine-earth fraction—loamy sand or sand

Suncook series

Landscape: Alluvial plain
Land use: Natural areas along the Bronx River
Landform: Flood plain
Parent material: Alluvial deposits
Drainage class: Excessively drained
Permeability: Moderately rapid to rapid in the surface, and rapid in the subsoil and substratum
Saturated hydraulic conductivity: High to very high throughout
Slope range: 0 to 3 percent
Associated soils: Pootatuck, Holderton, Olinville
Taxonomic class: Mixed, mesic Typic Udipsamments

Typical Pedon

Suncook fine sandy loam, in an area of Suncook fine sandy loam, 0 to 3 percent slopes, frequently flooded, in Bronx River Forest in Bronx County, New York; 430 feet west of the intersection of Bronx Park East and Magenta Avenue; USGS Mount Vernon, New York topographic quadrangle; lat 40° 52' 30.9288" N. and long. 73° 52' 17.7486" W.

A1—0 to 2.5 inches; very dark brown (10YR 2/2) fine sandy loam, very dark grayish brown (10YR 3/2) dry; moderate medium and fine granular structure; friable; many fine and common medium roots; strongly acid (pH 5.3); abrupt smooth boundary.
A2—2.5 to 5 inches; very dark grayish brown (10YR 3/2) loamy sand, and very dark grayish brown (10YR 3/2) dry color; weak medium granular structure; very friable; common fine and few medium roots; strongly acid (pH 5.3); clear smooth boundary.
CA—5 to 14 inches; 80 percent dark yellowish brown (10YR 3/4) loamy sand with 20 percent very dark brown (10YR 2/2) streaks; single grain; loose; few fine and few medium roots; very strongly acid (pH 5.0); clear smooth boundary.
C1—14 to 26 inches; dark yellowish brown (10YR 4/6) loamy sand; single grain; loose; few medium and few coarse roots;

strongly acid (pH 5.1); clear smooth boundary.
C2—26 to 60 inches; dark yellowish brown (10YR 4/6) loamy sand; single grain; loose; few medium roots; very strongly acid (pH 5.0). (Slightly coarser-grained and paler in color than C1.)

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: Within a depth of 6 inches
Coarse fragment content: 0 to 10 percent, by volume, in the A and CA horizons and 0 to 20 percent in the C horizons; mostly quartzose or gneissic gravel
Reaction: Very strongly acid to slightly acid

O horizon (if present):
Type of organic soil material—slightly decomposed or moderately decomposed plant material
A horizon:
Color—hue of 10YR or 2.5 Y, value of 2 to 4, and chroma of 1 to 3
Texture—fine sandy loam, sandy loam, loamy fine sand or loamy sand
CA horizon (If present):
Color—hue of 7.5YR to 5Y, value of 3 to 6, and chroma of 1 to 6
Texure—loamy fine sand, loamy sand, fine sand or sand
C horizon:
Color—hue of 7.5YR to 5Y, value of 3 to 6, and chroma of 1 to 6
Texture—loamy fine sand, loamy sand, fine sand or sand

Note: The surface horizons of Suncook soils in the Bronx River Watershed can have a slightly darker color (lower value) and better developed structure than typical for the series.

Tonawanda series

Landscape: Till plain
Land use: Natural areas in the NYBG, Bronx Zoo, and Bronx Park East
Landform: Upland depressions
Parent material: Silty water-sorted sediments
Drainage class: Somewhat poorly drained
Permeability: Moderate throughout
Saturated Hydraulic Conductivity: Moderately high to high throughout
Slope range: 0 to 8 percent
Associated soils: Canandaigua, Charlton
Taxonomic class: Coarse-silty, mixed, active, nonacid, mesic Aeric Endoaquepts

Typical Pedon

Tonawanda silt loam, in an area of Tonawanda silt loam, 0 to 3 percent slopes, in the New York Botanical Garden Native Forest, in Bronx County, New York; 580 north (348 degrees) from where the eastern bank of the Snuff Mill Bridge crosses the Bronx River; USGS Central Park, New York quadrangle; lat. 40° 51’38.9” N. and 73° 52’36.2” W.

A1—0 to 1 inch; black (10YR 2/1) silt loam; moderate medium granular structure; friable; many fine roots; very strongly acid (pH 4.8); clear smooth boundary.
A2—1 to 3 inches; black (2.5Y 2.5/1) silt loam; moderate medium granular structure; friable; common fine roots; very strongly acid (pH 4.8); clear smooth boundary.
Bw1—3 to 15 inches; light olive brown (2.5Y 5/3) silt loam; moderate medium subangular blocky structure; friable; very strongly acid (pH 4.8); clear smooth boundary.
Bw2—15 to 19 inches; light olive brown (2.5Y 5/3) silt loam; moderate medium subangular blocky structure; friable; very strongly acid (pH 5.0); common (12 percent) fine distinct light brownish

gray (2.5Y 6/2) iron depletions and common (6 percent) fine prominent yellowish brown (10YR 5/8) iron concentrations; clear smooth boundary.

Bg1—19 to 28 inches; light brownish gray (2.5 Y 6/2) silt loam; massive; firm; common (12 percent) medium prominent brownish yellow (10YR 6/8) and common (3 percent) fine prominent strong brown (7.5YR 5/8) iron concentrations; very strongly acid (pH 5.0); clear smooth boundary.

BC—28 to 39 inches; gray (10YR 6/1) very fine sandy loam; massive; firm; common (15 percent) medium prominent yellowish brown (10YR 5/8) iron concentrations; very strongly acid (pH 5.0); clear smooth boundary.

C—39 to 50 inches; light brownish gray (10YR 6/2) sandy loam; massive; friable; common (15 percent) medium prominent yellowish brown (10YR 5/8) and common (15 percent) medium distinct yellowish brown (10YR 5/4) iron concentrations; very strongly acid (pH 5.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 6 to 18 inches
Coarse fragment content: 0 to 2 percent, by volume, in the solum, and 0 to 15 percent in the substratum; mostly subangular gneissic gravel and cobbles
Reaction: Very strongly acid to slightly acid

O horizon (if present):
Type of organic soil material—slightly decomposed or moderately decomposed plant material

A horizon:
Color—hue of 10YR or 2.5 Y, value of 2 to 4, and chroma of 1 to 3
Texture—silt loam or loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow

Bw horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 or 4
Texure—silt loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray

Bg horizon:
Color—hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2
Texture—silt loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray

BC horizon:
Color—hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 4
Texture—silt loam or very fine sandy loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray

C horizon:
Color—hue of 10YR to 5Y, value of 4 tor 6, and chroma of 1 to 6
Texture—silt loam, loam, very fine sandy loam, fine sandy loam, sandy loam

Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray

Note: Tonawanda soils in the Bronx River Watershed are more acid than typical for the series, and may have sandy loam textures in the substratum that are atypical of the series.

Tonawanda, recreational parkland phase

Landscape: Till plain
Land use: Recreational park areas along the Pelham Parkway and in the Bronx Zoo
Landform: Upland
Parent material: Silty water-sorted sediments
Drainage class: Somewhat poorly drained
Permeability: Moderate throughout
Saturated Hydraulic Conductivity: Moderately high to high throughout
Slope range: 0 to 8 percent
Associated soils: Greenbelt, Centralpark, Canandaigua
Taxonomic class: Coarse-silty, mixed, active, nonacid, mesic Aeric Endoaquepts

Typical Pedon

Tonawanda silt loam, in an area of Tonawanda silt loam, 0 to 3 per cent slopes, recreational parkland phase, along the Pelham Parkway. Location needed.

A—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam; moderate medium granular structure; friable; common very fine, few fine, and few very coarse roots; 5 percent gravel-sized natural rock fragments; slightly acid (pH 6.2); abrupt smooth boundary.
Bw—5 to 10 inches; brown (10YR 4/3) silt loam; weak thick platy structure; firm; 3 percent cobble-sized brick fragments and 2 percent gravel-sized natural rock fragments; strongly acid (pH 5.5); abrupt smooth boundary.
Bg2—10 to 14 inches; light brownish gray (10YR 6/2) silt loam; weak coarse subangular blocky structure; firm; common (10 percent) fine prominent red (2.5YR 4/8) and common (9 percent) fine prominent yellowish red (5YR 5/8) iron concentrations; 2 percent cobble-sized natural rock fragments; strongly acid (pH 5.4); clear smooth boundary.
BC—14 to 40 inches; light brownish gray (2.5Y 6/2) heavy silt loam; weak very coarse subangular blocky structure; very firm; common (5 percent) fine prominent yellowish red (5YR 4/6) iron concentrations; 10 percent cobble-sized natural rock fragments; slightly acid (pH 6.3).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 6 to 18 inches
Coarse fragment content: 0 to 10 percent, by volume, in the solum, and 0 to 20 percent in the substratum
Reaction: Strongly acid to slightly alkaline
A horizon:
Color—hue of 10YR or 2.5 Y, value of 2 to 4, and chroma of 1 to 3
Texture—silt loam or loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow
Bw horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 6, and chroma of 3 or 4
Texure—silt loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray
Bg horizon:
Color—hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2

Texture—silt loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray

BC horizon:
Color—hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 6
Texture—silt loam or very fine sandy loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray

C horizon:
Color—hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 6
Texture—silt loam, loam, very fine sandy loam, fine sandy loam, sandy loam
Redoximorphic features (if present)—iron concentrations in shades of brown and yellow; iron depletions in shades of gray

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Central Park NY, NY)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	38.7	26.1	32.4	64	2	41	4.13	2.12	5.89	7.0	8.3
February----	41.5	28.0	34.7	67	7	55	3.15	1.89	4.28	6.1	7.1
March-------	50.5	35.1	42.8	78	14	161	4.37	2.47	6.05	7.1	3.4
April-------	61.5	44.2	52.8	87	28	401	4.28	2.46	5.89	6.9	0.4
May---------	71.8	54.2	63.0	93	41	721	4.69	2.52	6.60	7.7	0
June--------	79.9	63.2	71.6	95	49	956	3.84	1.77	5.61	6.5	0
July--------	85.3	68.8	77.0	99	57	1,156	4.62	2.11	6.77	7.0	0
August------	83.6	67.7	75.6	96	55	1,115	4.22	1.70	6.33	6.1	0
September---	75.9	60.3	68.1	93	45	851	4.23	2.40	5.85	6.1	0
October-----	64.7	49.6	57.1	82	34	539	3.85	1.92	5.53	5.5	0
November----	54.0	41.0	47.5	76	23	257	4.36	1.86	6.48	6.0	0.4
December----	43.7	31.6	37.6	66	10	82	3.95	1.69	5.87	6.6	2.6
Yearly:											
Average---	62.6	47.5	55.0	---	---	---	---	---	---	---	---
Extreme---	104	-2	---	100	1	---	---	---	---	---	---
Total-----	---	---	---	---	---	6,335	49.69	42.33	56.74	78.6	22.2

Average # of days per year with at least 1 inch of snow on the ground: 19

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (Threshold: 40.0 deg. F)

Table 2.--Freeze Dates In Spring And Fall

(Recorded in the period 1971-2000 at: N Y CNTRL PK WSFO CI, NY5801)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 29	April 8	April 12
2 year in 10 later than--	March 24	April 3	April 8
5 year in 10 later than--	March 14	March 24	March 31
First freezing temperature in fall:			
1 yr in 10 earlier than--	November 19	November 13	October 28
2 yr in 10 earlier than--	November 26	November 18	November 3
5 yr in 10 earlier than--	December 8	November 28	November 14

Table 3.--Growing Season

(Recorded for the period 1971-2000 at: N Y CNTRL PK WSFO CI, NY5801)

Probability	Daily Minimum Temperature		
	> 24 °F	> 28 °F	> 32 °F
	Days	Days	Days
9 years in 10	243	226	203
8 years in 10	251	233	211
5 years in 10	268	247	227
2 years in 10	285	262	243
1 year in 10	294	269	251

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1A	Canandaigua-Tonawanda silt loams, 0 to 3 percent slopes	3	*
2A	Centralpark sandy loam, 0 to 3 percent slopes	13	0.2
3B	Centralpark sandy loam, 3 to 8 percent slopes	5	*
4F	Centralpark sandy loam, 35 to 60 percent slopes	1	*
5D	Centralpark-Greenbelt complex, 15 to 25 percent slopes	10	0.1
6A	Centralpark-Greenbelt-Rock outcrop complex, 0 to 3 percent slopes	9	0.1
7B	Centralpark-Greenbelt-Rock outcrop complex, 3 to 8 percent slopes	7	0.1
8C	Centralpark-Greenbelt-Rock outcrop complex, 8 to 15 percent slopes	1	*
9D	Centralpark-Greenbelt-Rock outcrop complex, 15 to 25 percent slopes	5	*
10D	Charlton loam, 15 to 25 percent slopes	2	*
11C	Charlton-Chatfield complex, 8 to 15 percent slopes, rocky	29	0.4
12C	Charlton-Chatfield-Rock outcrop complex, 8 to 15 percent slopes	26	0.4
13C	Chatfield-Greenbelt-Hollis complex, 8 to 15 percent slopes, very rocky, recreational parkland phase	36	0.5
14D	Chatfield-Charlton complex, 15 to 25 percent slopes, very rocky	54	0.8
15E	Chatfield-Charlton complex, 25 to 35 percent slopes, very rocky	47	0.7
16B	Chatfield-Charlton-Hollis complex, 0 to 8 percent slopes, very rocky	27	0.4
17B	Chatfield-Hollis-Rock outcrop-Charlton complex, 0 to 8 percent slopes	16	0.2
18C	Chatfield-Greenbelt-Rock outcrop complex, 8 to 15 percent slopes, recreational parkland phase	16	0.2
19B	Chatfield-Hollis-Greenbelt complex, 0 to 8 percent slopes, rocky, recreational parkland phase	75	1.1
20B	Chatfield-Hollis-Rock outcrop complex, 0 to 8 percent slopes, recreational parkland phase	18	0.3
21D	Chatfield-Hollis-Rock outcrop complex, 15 to 25 percent slopes	39	0.6
22F	Chatfield-Hollis-Rock outcrop complex, 35 to 60 percent slopes	43	0.6
23A	Fluvaquentic Endoaquolls, 0 to 3 percent slopes, frequently flooded	7	0.1
24A	Fluventic Hapludolls, 0 to 3 percent slopes, frequently flooded	6	*
25A	Fluventic Hapludolls-Fluvaquentic Endoaquolls complex, 0 to 3 percent slopes, frequently flooded	4	*
26A	Greenbelt sandy loam, 0 to 3 percent slopes	107	1.5
27B	Greenbelt sandy loam, 3 to 8 percent slopes	70	1.0
28C	Greenbelt sandy loam, 8 to 15 percent slopes	24	0.4
29D	Greenbelt loam, 15 to 25 percent slopes	10	0.1
30E	Greenbelt loam, 25 to 35 percent slopes	40	0.6
31F	Greenbelt loam, 35 to 60 percent slopes	11	0.2
32A	Greenbelt-Centralpark complex, 0 to 3 percent slopes	15	0.2
33B	Greenbelt-Centralpark complex, 3 to 8 percent slopes	11	0.2
34F	Greenbelt-Laguardia complex, 35 to 60 percent slopes	3	*
35A	Greenbelt-Pavement & buildings complex, 0 to 3 percent slopes, cemetery, deep water table phase	11	0.2
36A	Greenbelt-Pavement & buildings complex, 0 to 3 percent slopes, cemetery, very deep water table phase	57	0.8
37B	Greenbelt-Pavement & buildings complex, 3 to 8 percent slopes, cemetery, very deep water table phase	203	2.9
38C	Greenbelt-Pavement & buildings complex, 8 to 15 percent slopes, cemetery, very deep water table phase	75	1.1
39D	Greenbelt-Pavement & buildings complex, 15 to 25 percent slopes, cemetery, very deep water table phase	18	0.3
40E	Greenbelt-Pavement & buildings complex, 25 to 35 percent slopes, cemetery, very deep water table phase	18	0.3
41F	Centralpark sandy loam, 35 to 60 percent slopes, very rubbly	2	*
42G	Centralpark sandy loam, 60 to 80 percent slopes, very rubbly	24	0.4
43F	Greenbelt-Centralpark very rubbly complex, 35 to 60 percent slopes	6	*
44G	Greenbelt-Centralpark very rubbly complex, 60 to 80 percent slopes	19	0.3
45A	Holderton silt loam, 0 to 3 percent slopes, occasionally flooded	2	*
46A	Holderton-Fluvaquentic Endoaquolls complex, 0 to 3 percent slopes, frequently flooded	2	*
47A	Holderton-Olinville complex, 0 to 3 percent slopes, occasionally flooded	2	*
48A	Laguardia sandy loam, 0 to 3 percent slopes, very stony	8	0.1
49B	Laguardia sandy loam, 3 to 8 percent slopes, very stony	84	1.2
50C	Laguardia sandy loam, 8 to 15 percent slopes, very stony	4	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
51A	Laguardia sandy loam, 0 to 3 percent slopes	83	1.2
52B	Laguardia sandy loam, 3 to 8 percent slopes	10	0.1
53C	Laguardia sandy loam, 8 to 15 percent slopes	7	0.1
54D	Laguardia sandy loam, 15 to 25 percent slopes	3	*
55E	Laguardia sandy loam, 25 to 35 percent slopes	6	*
56F	Laguardia sandy loam, 35 to 60 percent slopes	1	*
57A	Laguardia-Greenbelt complex, 0 to 3 percent slopes	184	2.6
58B	Laguardia-Greenbelt complex, 3 to 8 percent slopes	16	0.2
59A	Limerick loam, 0 to 3 percent slopes, frequently ponded	3	*
60A	Natchaug muck, 0 percent slopes	4	*
61A	Olinville loam, 0 to 3 percent slopes, occasionally flooded	9	0.1
62A	Pavement & buildings, tidal marsh substratum, 0 to 3 percent slopes	343	4.9
63A	Pavement & buildings, till substratum, 0 to 3 percent slopes	1,744	25.1
64B	Pavement & buildings, till substratum, 3 to 8 percent slopes	494	7.1
65C	Pavement & buildings, till substratum, 8 to 15 percent slopes	220	3.2
66A	Pavement & buildings, alluvium substratum, 0 to 3 percent slopes	32	0.5
67A	Pavement & buildings-Greenbelt complex, 0 to 3 percent slopes, low impervious surface phase	223	3.2
68B	Pavement & buildings-Greenbelt complex, 3 to 8 percent slopes, low impervious surface phase	166	2.4
69C	Pavement & buildings-Greenbelt complex, 8 to 15 percent slopes, low impervious surface phase	17	0.3
70A	Pavement & buildings-Greenbelt complex, 0 to 3 percent slopes	939	13.5
71B	Pavement & buildings-Greenbelt complex, 3 to 8 percent slopes	724	10.4
72C	Pavement & buildings-Greenbelt complex, 8 to 15 percent slopes	77	1.1
73D	Pavement & buildings-Greenbelt complex, 15 to 25 percent slopes	2	*
74A	Pavement & buildings-Greenbelt-Rock outcrop complex, 0 to 3 percent slopes	10	0.1
75B	Pavement & buildings-Greenbelt-Rock outcrop complex, 3 to 8 percent slopes	12	0.2
76A	Pootatuck loam, 0 to 3 percent slopes, occasionally flooded	2	*
77B	Pootatuck loam, 3 to 8 percent slopes, occasionally flooded	1	*
78A	Pootatuck-Fluventic Hapludolls complex, 0 to 3 percent slopes, occasionally flooded	2	*
79A	Pootatuck-Olinville complex, 0 to 3 percent slopes, occasionally flooded	3	*
80A	Pootatuck-Suncook-Olinville complex, 0 to 3 percent slopes, occasionally flooded	2	*
81A	Rikers very gravelly loamy sand, 0 to 3 percent slopes	76	1.1
82F	Rikers very gravelly loamy sand, 35 to 60 percent slopes	5	*
83G	Rock outcrop-Hollis-Chatfield complex, 60 to 80 percent slopes	10	0.1
84A	Suncook fine sandy loam, 0 to 3 percent slopes, occasionally flooded	1	*
85A	Suncook sandy loam, 0 to 3 percent slopes	3	*
86A	Tonawanda silt loam, 0 to 3 percent slopes	2	*
87B	Tonawanda silt loam, 3 to 8 percent slopes	1	*
88A	Tonawanda silt loam, 0 to 3 percent slopes, recreational parkland phase	6	*
89B	Tonawanda silt loam, 3 to 8 percent slopes, recreational parkland phase	2	*
W	Water	172	2.5
	Total	6,945	100.0

* Less than 0.1 percent.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Index of Soil Properties Tables

Table 5.--Engineering Index Properties

Table 5 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 5.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

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

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

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

Bronx County, New York
Table 5.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
1A:												
Canandaigua ----	0-7	SIL	OH, ML	A-7, A-4, A-5, A-6	0	0-1	75-100	74-100	62-100	57-99	18-68	2-18
	7-17	SICL, SIL	CL, CH, ML	A-4, A-7, A-5, A-6	0	0-1	77-100	76-100	61-100	58-100	16-58	2-28
	17-32	SIL, SICL	CH, ML, CL	A-7, A-6, A-5, A-4	0	0-1	78-100	77-100	61-100	58-100	16-54	2-28
	32-45	SIL, SICL, SL, L	CL, ML, CH	A-4, A-5, A-6, A-7	0	0-1	78-100	77-100	65-100	59-100	16-50	2-28
Tonawanda ------	0-3	SIL	ML, OH	A-5, A-4	0	0-1	90-100	90-100	80-100	69-93	0-60	NP-10
	3-15	SIL	CL-ML, ML	A-4, A-6	0	0-1	91-100	91-100	80-100	72-96	0-39	NP-11
	15-20	SIL	CL-ML, ML	A-4, A-6	0	0-1	91-100	91-100	80-100	72-96	0-39	NP-11
	20-28	SIL	CL-ML, ML	A-4, A-6	0	0-1	92-100	91-100	80-100	72-96	0-39	NP-11
	28-39	VFSL	ML, CL, SM	A-4, A-6	0	0-1	92-100	91-100	84-100	49-71	0-34	NP-11
	39-50	SICL, SIL, SL, CL, VFSL	SM, CH	A-5, A-6, A-2, A-7, A-4	0	0-1	77-100	76-100	55-100	27-76	0-50	NP-28
2A:												
Centralpark ----	0-4	FSL, CBV-SL, SIL, SL, L	SM, SC	A-4, A-1, A-2	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	SIL, STV-COSL, STV-SL, L, CB-SL, SL	SM, GM, SC	A-2, A-4, A-1	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-72	STV-COSL, STX-SL, FLV-COSL, CBX-LS, FLV-VFSL, CBX-SL	SM, SC, GP-GM	A-4, A-2, A-1	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10
3B:												
Centralpark ----	0-4	CBV-SL, FSL, SIL, L, SL	SM, SC	A-4, A-2, A-1	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	SIL, L, CB-SL, SL, STV-SL, STV-COSL	SM, GM, SC	A-4, A-1, A-2	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-72	FLV-VFSL, FLV-COSL, CBX-SL, STV-COSL, CBX-LS, STX-SL	SM, SC, GP-GM	A-4, A-1, A-2	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10
4F:												
Centralpark ----	0-4	FSL, SIL, SL, L, CBV-SL	SM, SC	A-2, A-1, A-4	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	SIL, CB-SL, SL, STV-SL, STV-COSL, L	SM, GM, SC	A-4, A-1, A-2	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-72	CBX-LS, CBX-SL, FLV-VFSL, FLV-COSL, STX-SL, STV-COSL	SM, SC, GP-GM	A-2, A-1, A-4	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10
5D:												
Centralpark ----	0-4	CBV-SL, FSL, SIL, SL, L	SM, SC	A-4, A-1, A-2	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	SIL, STV-SL, STV-COSL, SL, CB-SL, L	SM, GM, SC	A-4, A-1, A-2	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-72	STV-COSL, STX-SL, CBX-SL, FLV-COSL, FLV-VFSL, CBX-LS	SM, SC, GP-GM	A-1, A-2, A-4	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Greenbelt ------	0-4	SL, L	CL-ML, ML, SM	A-7, A-4, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	STV-FSL, CB-FSL, L, GR-FSL, SL, VFSL, GR-SL, CB-SL	SC-SM, SM	A-2, A-7, A-5, A-4, A-6	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	STV-FSL, VFSL, GR-FSL, FSL, CB-FSL, SL, CB-SL, GR-SL, L	SC-SM, SM	A-2, A-4, A-5, A-6, A-7	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	CB-LFS, CB-SIL, CB-FSL, SL, ST-LCOS, FSL, SIL, L	SC-SM, CL, SM	A-2, A-4, A-6	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
6A:												
Centralpark ----	0-4	FSL, CBV-SL, SIL, SL, L	SM, SC	A-4, A-1, A-2	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	CB-SL, SL, STV-SL, STV-COSL, L, SIL	SM, GM, SC	A-4, A-1, A-2	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-72	CBX-SL, STV-COSL, STX-SL, FLV-COSL, FLV-VFSL, CBX-LS	SM, SC, GP-GM	A-1, A-2, A-4	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10
Greenbelt ------	0-4	SL, L	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	GR-FSL, SL, VFSL, GR-SL, STV-FSL, CB-FSL, CB-SL, L	SC-SM, SM	A-2, A-7, A-4, A-6, A-5	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	FSL, STV-FSL, VFSL, CB-SL, GR-SL, L, SL, GR-FSL, CB-FSL	SC-SM, SM	A-2, A-4, A-5, A-6, A-7	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	L, CB-FSL, CB-LFS, FSL, ST-LCOS, SL, SIL, CB-SIL	SC-SM, CL, SM	A-4, A-6, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
Rock Outcrop ---	0-72	BR			---	---	---	---	---	---	---	---
7B:												
Centralpark ----	0-4	CBV-SL, SIL, SL, L, FSL	SM, SC	A-4, A-1, A-2	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	STV-COSL, STV-SL, SL, CB-SL, L, SIL	SM, GM, SC	A-2, A-4, A-1	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-72	CBX-SL, CBX-LS, FLV-VFSL, FLV-COSL, STX-SL, STV-COSL	SM, SC, GP-GM	A-1, A-2, A-4	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Greenbelt ------	0-4	SL, L	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	CB-SL, SL, VFSL, GR-FSL, L, CB-FSL, STV-FSL, GR-SL	SC-SM, SM	A-7, A-5, A-4, A-6, A-2	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	VFSL, STV-FSL, SL, GR-FSL, FSL, CB-FSL, L, CB-SL, GR-SL	SC-SM, SM	A-2, A-4, A-5, A-6, A-7	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	ST-LCOS, FSL, SL, L, SIL, CB-SIL, CB-LFS, CB-FSL	SC-SM, CL, SM	A-2, A-4, A-6	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
Rock Outcrop ---	---	---	---	---	---	---	---	---	---	---	---	---
8C:												
Centralpark ----	0-4	L, SIL, CBV-SL, FSL, SL	SM, SC	A-1, A-2, A-4	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	STV-COSL, STV-SL, SL, CB-SL, L, SIL	SM, GM, SC	A-4, A-1, A-2	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-72	CBX-LS, FLV-VFSL, FLV-COSL, STX-SL, STV-COSL, CBX-SL	SM, SC, GP-GM	A-4, A-2, A-1	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	GR-FSL, VFSL, L, CB-FSL, STV-FSL, GR-SL, SL, CB-SL	SC-SM, SM	A-6, A-5, A-7, A-2, A-4	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	CB-FSL, GR-SL, L, STV-FSL, SL, GR-FSL, FSL, CB-SL, VFSL	SC-SM, SM	A-7, A-2, A-4, A-5, A-6	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	FSL, CB-FSL, ST-LCOS, SL, L, SIL, CB-SIL, CB-LFS	SC-SM, CL, SM	A-2, A-4, A-6	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
Rock Outcrop ---	---	---	---	---	---	---	---	---	---	---	---	---
9D:												
Centralpark ----	0-4	SL, SIL, CBV-SL, FSL, L	SM, SC	A-4, A-2, A-1	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	STV-COSL, STV-SL, SL, CB-SL, SIL, L	SM, GM, SC	A-1, A-4, A-2	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-72	CBX-LS, FLV-VFSL, CBX-SL, STX-SL, STV-COSL, FLV-COSL	SM, SC, GP-GM	A-1, A-4, A-2	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Greenbelt ------	0-4	SL, L	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	GR-FSL, GR-SL, STV-FSL, CB-FSL, SL, L, CB-SL, VFSL	SC-SM, SM	A-4, A-6, A-5, A-7, A-2	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	L, GR-SL, CB-SL, CB-FSL, SL, GR-FSL, FSL, VFSL, STV-FSL	SC-SM, SM	A-4, A-2, A-5, A-6, A-7	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	FSL, SL, CB-FSL, CB-LFS, CB-SIL, ST-LCOS, SIL, L	SC-SM, CL, SM	A-6, A-4, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
Rock Outcrop ---	---	---	---	---	---	---	---	---	---	---	---	---
10D:												
Charlton -------	0-6	FSL, SL, L, STV-FSL	ML, OH, SM	A-5, A-6, A-4, A-2, A-7	0-58	0	69-100	67-100	57-100	35-71	20-68	3-18
	6-7	SL, L, STV-SL, CB-SL, ST-SL	ML, GM	A-2, A-4, A-5, A-7, A-6	0-58	9-29	64-90	63-90	52-88	31-58	16-48	2-13
	7-19	CB-SL, CB-FSL, ST-FSL, SL, ST-SL, BY-SL, FSL	CL, ML, SM	A-6, A-5, A-4, A-7	8-31	8-17	100	100	82-97	45-60	16-41	2-13
	19-37	SL, ST-FSL, ST-SL, FSL, BY-SL, CB-FSL, CB-SL	SC-SM, ML, SM	A-2, A-4, A-5, A-7, A-6	0-23	5-22	70-92	68-91	57-90	32-56	16-41	2-13
	37-45	L, ST-LS, CB-LS, CB-SL, LS, GRV-LS, GR-LS, SL	CL-ML, CL, GM	A-2, A-4, A-5, A-6, A-7	0-23	8-43	51-92	49-91	41-91	26-68	18-43	3-18
11C:												
Charlton -------	0-6	FSL, STV-FSL, L, SL	ML, OH, SM	A-2, A-4, A-5, A-6, A-7	0-58	0	69-100	67-100	57-100	35-71	20-68	3-18
	6-7	CB-SL, STV-SL, ST-SL, L, SL	ML, GM	A-2, A-4, A-5, A-7, A-6	0-58	9-29	64-90	63-90	52-88	31-58	16-48	2-13
	7-19	BY-SL, CB-FSL, CB-SL, SL, ST-SL, ST-FSL, FSL	CL, ML, SM	A-5, A-6, A-7, A-4	8-31	8-17	100	100	82-97	45-60	16-41	2-13
	19-37	CB-SL, FSL, ST-SL, CB-FSL, SL, ST-FSL, BY-SL	SC-SM, ML, SM	A-6, A-4, A-2, A-5, A-7	0-23	5-22	70-92	68-91	57-90	32-56	16-41	2-13
	37-45	SL, GR-LS, CB-SL, LS, GRV-LS, L, ST-LS, CB-LS	CL-ML, CL, GM	A-7, A-5, A-4, A-2, A-6	0-23	8-43	51-92	49-91	41-91	26-68	18-43	3-18
Chatfield ------	0-7	FSL, L	CL-ML, SM	A-4	0	0	80-96	79-95	57-84	36-60	16-23	3-7
	7-25	ST-FSL, CB-L, SL, FSL	SC-SM, SM	A-4, A-2	0-4	0-21	74-97	73-97	53-87	24-49	15-23	3-7
	25-35	BR			---	---	---	---	---	---	---	---

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
12C:												
Charlton -------	0-6	SL, L, STV-FSL, FSL	ML, OH, SM	A-6, A-5, A-2, A-7, A-4	0-58	0	69-100	67-100	57-100	35-71	20-68	3-18
	6-7	SL, L, ST-SL, CB-SL, STV-SL	ML, GM	A-4, A-5, A-6, A-7, A-2	0-58	9-29	64-90	63-90	52-88	31-58	16-48	2-13
	7-19	CB-FSL, CB-SL, BY-SL, ST-SL, SL, ST-FSL, FSL	CL, ML, SM	A-4, A-5, A-6, A-7	8-31	8-17	100	100	82-97	45-60	16-41	2-13
	19-37	SL, BY-SL, ST-SL, ST-FSL, FSL, CB-SL, CB-FSL	SC-SM, ML, SM	A-2, A-4, A-5, A-6, A-7	0-23	5-22	70-92	68-91	57-90	32-56	16-41	2-13
	37-45	GRV-LS, GR-LS, L, ST-LS, CB-LS, CB-SL, SL, LS	CL-ML, CL, GM	A-7, A-5, A-6, A-2, A-4	0-23	8-43	51-92	49-91	41-91	26-68	18-43	3-18
Chatfield ------	0-7	L, FSL	CL-ML, SM	A-4	0	0	80-96	79-95	57-84	36-60	16-23	3-7
	7-25	SL, FSL, CB-L, ST-FSL	SC-SM, SM	A-2, A-4	0-4	0-21	74-97	73-97	53-87	24-49	15-23	3-7
	25-35	BR			---	---	---	---	---	---	---	---
Rock Outcrop ---	---	---	---	---	---	---	---	---	---	---	---	---
13C:												
Chatfield recreational parkland phase-	0-4	FSL, L	SM	A-4, A-5, A-2	0	0-1	77-100	76-100	66-98	25-44	20-60	3-10
	4-22	SL, CB-FSL, FSL	SC-SM, SM	A-6, A-4, A-2	0	0-21	80-100	79-100	64-98	25-49	0-39	NP-11
	22-32	BR			---	---	---	---	---	---	---	---
Greenbelt ------	0-4	SL, L	CL-ML, ML, SM	A-5, A-6, A-7, A-4	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	CB-SL, VFSL, SL, GR-FSL, L, CB-FSL, STV-FSL, GR-SL	SC-SM, SM	A-6, A-4, A-5, A-2, A-7	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	GR-FSL, FSL, STV-FSL, VFSL, CB-SL, SL, CB-FSL, L, GR-SL	SC-SM, SM	A-2, A-4, A-7, A-6, A-5	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	ST-LCOS, FSL, SL, L, SIL, CB-SIL, CB-LFS, CB-FSL	SC-SM, CL, SM	A-4, A-2, A-6	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
Hollis recreational parkland phase-	0-7	FSL	SM	A-6, A-7, A-2, A-4, A-5	0	0-12	69-100	68-100	54-99	18-45	0-61	NP-11
	7-11	SL	SC-SM, SM	A-7, A-4, A-2, A-6, A-5	0-12	0-20	88-100	88-100	59-85	26-48	0-46	NP-12
	11-18	SL, CB-SL	SM, SC-SM	A-4, A-6, A-2	0-12	0-19	89-100	88-100	60-85	26-48	0-40	NP-12
	18-28	BR			---	---	---	---	---	---	---	---
14D:												
Chatfield ------	0-7	L, FSL	CL-ML, SM	A-4	0	0	80-96	79-95	57-84	36-60	16-23	3-7
	7-25	CB-L, ST-FSL, FSL, SL	SC-SM, SM	A-2, A-4	0-4	0-21	74-97	73-97	53-87	24-49	15-23	3-7
	25-35	BR			---	---	---	---	---	---	---	---

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
Charlton -------	0-6	FSL, SL, L, STV-FSL	ML, OH, SM	A-4, A-2, A-5, A-6, A-7	0-58	0	69-100	67-100	57-100	35-71	20-68	3-18
	6-7	L, STV-SL, CB-SL, ST-SL, SL	ML, GM	A-2, A-4, A-5, A-6, A-7	0-58	9-29	64-90	63-90	52-88	31-58	16-48	2-13
	7-19	CB-FSL, CB-SL, BY-SL, ST-SL, SL, ST-FSL, FSL	CL, ML, SM	A-5, A-4, A-6, A-7	8-31	8-17	100	100	82-97	45-60	16-41	2-13
	19-37	CB-SL, CB-FSL, FSL, ST-FSL, SL, ST-SL, BY-SL	SC-SM, ML, SM	A-2, A-4, A-5, A-6, A-7	0-23	5-22	70-92	68-91	57-90	32-56	16-41	2-13
	37-45	GRV-LS, LS, SL, CB-SL, ST-LS, L, GR-LS, CB-LS	CL-ML, CL, GM	A-2, A-4, A-5, A-7, A-6	0-23	8-43	51-92	49-91	41-91	26-68	18-43	3-18
15E:												
Chatfield ------	0-7	FSL, L	CL-ML, SM	A-4	0	0	80-96	79-95	57-84	36-60	16-23	3-7
	7-25	FSL, ST-FSL, CB-L, SL	SC-SM, SM	A-2, A-4	0-4	0-21	74-97	73-97	53-87	24-49	15-23	3-7
	25-35	BR			---	---	---	---	---	---	---	---
Charlton -------	0-6	SL, L, STV-FSL, FSL	ML, OH, SM	A-5, A-4, A-7, A-6, A-2	0-58	0	69-100	67-100	57-100	35-71	20-68	3-18
	6-7	CB-SL, STV-SL, ST-SL, L, SL	ML, GM	A-2, A-4, A-5, A-6, A-7	0-58	9-29	64-90	63-90	52-88	31-58	16-48	2-13
	7-19	SL, ST-SL, BY-SL, CB-FSL, ST-FSL, FSL, CB-SL	CL, ML, SM	A-4, A-5, A-6, A-7	8-31	8-17	100	100	82-97	45-60	16-41	2-13
	19-37	SL, ST-SL, CB-SL, CB-FSL, BY-SL, FSL, ST-FSL	SC-SM, ML, SM	A-2, A-4, A-5, A-6, A-7	0-23	5-22	70-92	68-91	57-90	32-56	16-41	2-13
	37-45	CB-LS, ST-LS, L, GR-LS, GRV-LS, LS, SL, CB-SL	CL-ML, CL, GM	A-7, A-6, A-4, A-2, A-5	0-23	8-43	51-92	49-91	41-91	26-68	18-43	3-18
16B:												
Charlton -------	0-6	FSL, SL, L, STV-FSL	ML, OH, SM	A-7, A-6, A-5, A-2, A-4	0-58	0	69-100	67-100	57-100	35-71	20-68	3-18
	6-7	L, STV-SL, CB-SL, ST-SL, SL	ML, GM	A-7, A-6, A-5, A-4, A-2	0-58	9-29	64-90	63-90	52-88	31-58	16-48	2-13
	7-19	CB-SL, ST-SL, SL, ST-FSL, FSL, BY-SL, CB-FSL	CL, ML, SM	A-7, A-6, A-5, A-4	8-31	8-17	100	100	82-97	45-60	16-41	2-13
	19-37	ST-SL, CB-SL, SL, ST-FSL, CB-FSL, FSL, BY-SL	SC-SM, ML, SM	A-2, A-4, A-5, A-6, A-7	0-23	5-22	70-92	68-91	57-90	32-56	16-41	2-13
	37-45	CB-SL, L, GR-LS, SL, CB-LS, ST-LS, GRV-LS, LS	CL-ML, CL, GM	A-2, A-4, A-5, A-6, A-7	0-23	8-43	51-92	49-91	41-91	26-68	18-43	3-18
Chatfield ------	0-7	FSL, L	CL-ML, SM	A-4	0	0	80-96	79-95	57-84	36-60	16-23	3-7
	7-25	FSL, SL, CB-L, ST-FSL	SC-SM, SM	A-4, A-2	0-4	0-21	74-97	73-97	53-87	24-49	15-23	3-7
	25-35	BR			---	---	---	---	---	---	---	---
Hollis ---------	0-2	L, FSL	ML, CL-ML, SM	A-4	0	0-1	76-100	75-100	57-93	36-65	15-25	NP-5
	2-6	FSL	SM, CL-ML	A-4, A-2	0	0-1	76-100	75-100	61-98	26-51	15-25	NP-5
	6-16	ST-FSL, FSL, SL, CB-L	CL-ML, SM	A-4, A-2	0-21	3-19	69-97	68-96	50-87	23-49	15-23	3-7
	16-26	BR			---	---	---	---	---	---	---	---

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
17B:												
Chatfield ------	0-7	FSL, L	CL-ML, SM	A-4	0	0	80-96	79-95	57-84	36-60	16-23	3-7
	7-25	SL, CB-L, ST-FSL, FSL	SC-SM, SM	A-2, A-4	0-4	0-21	74-97	73-97	53-87	24-49	15-23	3-7
	25-35	BR			---	---	---	---	---	---	---	---
Hollis ---------	0-2	L, FSL	ML, CL-ML, SM	A-4	0	0-1	76-100	75-100	57-93	36-65	15-25	NP-5
	2-6	FSL	SM, CL-ML	A-4, A-2	0	0-1	76-100	75-100	61-98	26-51	15-25	NP-5
	6-16	CB-L, ST-FSL, FSL, SL	CL-ML, SM	A-4, A-2	0-21	3-19	69-97	68-96	50-87	23-49	15-23	3-7
	16-26	BR			---	---	---	---	---	---	---	---
Rock Outcrop ---	---	---	---	---	---	---	---	---	---	---	---	---
Charlton -------	0-6	FSL, STV-FSL, L, SL	ML, OH, SM	A-5, A-4, A-7, A-6, A-2	0-58	0	69-100	67-100	57-100	35-71	20-68	3-18
	6-7	SL, L, STV-SL, CB-SL, ST-SL	ML, GM	A-7, A-6, A-5, A-4, A-2	0-58	9-29	64-90	63-90	52-88	31-58	16-48	2-13
	7-19	CB-SL, CB-FSL, BY-SL, ST-SL, SL, FSL, ST-FSL	CL, ML, SM	A-4, A-7, A-6, A-5	8-31	8-17	100	100	82-97	45-60	16-41	2-13
	19-37	CB-FSL, BY-SL, FSL, ST-FSL, SL, ST-SL, CB-SL	SC-SM, ML, SM	A-7, A-6, A-5, A-4, A-2	0-23	5-22	70-92	68-91	57-90	32-56	16-41	2-13
	37-45	GRV-LS, SL, CB-SL, LS, CB-LS, ST-LS, GR-LS, L	CL-ML, CL, GM	A-2, A-4, A-5, A-7, A-6	0-23	8-43	51-92	49-91	41-91	26-68	18-43	3-18
18C:												
Chatfield recreational parkland phase-	0-4	L, FSL	SM	A-4, A-2, A-5	0	0-1	77-100	76-100	66-98	25-44	20-60	3-10
	4-22	CB-FSL, SL, FSL	SC-SM, SM	A-6, A-4, A-2	0	0-21	80-100	79-100	64-98	25-49	0-39	NP-11
	22-32	BR			---	---	---	---	---	---	---	---
Greenbelt ------	0-4	SL, L	CL-ML, ML, SM	A-5, A-4, A-6, A-7	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	CB-SL, VFSL, SL, GR-FSL, L, CB-FSL, STV-FSL, GR-SL	SC-SM, SM	A-2, A-7, A-6, A-4, A-5	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	CB-SL, L, CB-FSL, GR-SL, FSL, VFSL, STV-FSL, SL, GR-FSL	SC-SM, SM	A-7, A-6, A-5, A-4, A-2	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	ST-LCOS, FSL, SL, L, SIL, CB-SIL, CB-LFS, CB-FSL	SC-SM, CL, SM	A-4, A-6, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
Rock Outcrop ---	---	---	---	---	---	---	---	---	---	---	---	---
19B:												
Chatfield recreational parkland phase-	0-4	FSL, L	SM	A-4, A-5, A-2	0	0-1	77-100	76-100	66-98	25-44	20-60	3-10
	4-22	CB-FSL, FSL, SL	SC-SM, SM	A-4, A-2, A-6	0	0-21	80-100	79-100	64-98	25-49	0-39	NP-11
	22-32	BR			---	---	---	---	---	---	---	---

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Hollis recreational parkland phase-	0-7	FSL	SM	A-7, A-2, A-4, A-5, A-6	0	0-12	69-100	68-100	54-99	18-45	0-61	NP-11
	7-11	SL	SC-SM, SM	A-7, A-4, A-2, A-6, A-5	0-12	0-20	88-100	88-100	59-85	26-48	0-46	NP-12
	11-18	CB-SL, SL	SM, SC-SM	A-4, A-2, A-6	0-12	0-19	89-100	88-100	60-85	26-48	0-40	NP-12
	18-28	BR			---	---	---	---	---	---	---	---
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	CB-SL, VFSL, SL, GR-FSL, L, CB-FSL, STV-FSL, GR-SL	SC-SM, SM	A-5, A-4, A-7, A-2, A-6	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	SL, FSL, STV-FSL, VFSL, CB-SL, GR-SL, L, GR-FSL, CB-FSL	SC-SM, SM	A-4, A-2, A-5, A-6, A-7	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	FSL, ST-LCOS, L, SL, CB-FSL, CB-LFS, CB-SIL, SIL	SC-SM, CL, SM	A-6, A-4, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
20B:												
Chatfield recreational parkland phase-	0-4	L, FSL	SM	A-2, A-5, A-4	0	0-1	77-100	76-100	66-98	25-44	20-60	3-10
	4-22	FSL, SL, CB-FSL	SC-SM, SM	A-6, A-4, A-2	0	0-21	80-100	79-100	64-98	25-49	0-39	NP-11
	22-32	BR			---	---	---	---	---	---	---	---
Hollis recreational parkland phase-	0-7	FSL	SM	A-7, A-2, A-4, A-5, A-6	0	0-12	69-100	68-100	54-99	18-45	0-61	NP-11
	7-11	SL	SC-SM, SM	A-5, A-6, A-2, A-4, A-7	0-12	0-20	88-100	88-100	59-85	26-48	0-46	NP-12
	11-18	SL, CB-SL	SM, SC-SM	A-6, A-2, A-4	0-12	0-19	89-100	88-100	60-85	26-48	0-40	NP-12
	18-28	BR			---	---	---	---	---	---	---	---
Rock Outcrop ---	---	---	---	---	---	---	---	---	---	---	---	---
21D:												
Chatfield ------	0-7	L, FSL	CL-ML, SM	A-4	0	0	80-96	79-95	57-84	36-60	16-23	3-7
	7-25	SL, ST-FSL, CB-L, FSL	SC-SM, SM	A-2, A-4	0-4	0-21	74-97	73-97	53-87	24-49	15-23	3-7
	25-35	BR			---	---	---	---	---	---	---	---
Hollis ---------	0-2	FSL, L	ML, CL-ML, SM	A-4	0	0-1	76-100	75-100	57-93	36-65	15-25	NP-5
	2-6	FSL	SM, CL-ML	A-4, A-2	0	0-1	76-100	75-100	61-98	26-51	15-25	NP-5
	6-16	ST-FSL, SL, CB-L, FSL	CL-ML, SM	A-4, A-2	0-21	3-19	69-97	68-96	50-87	23-49	15-23	3-7
	16-26	BR			---	---	---	---	---	---	---	---
Rock Outcrop ---	---	---	---	---	---	---	---	---	---	---	---	---
22F:												
Chatfield ------	0-7	FSL, L	CL-ML, SM	A-4	0	0	80-96	79-95	57-84	36-60	16-23	3-7
	7-25	CB-L, ST-FSL, SL, FSL	SC-SM, SM	A-2, A-4	0-4	0-21	74-97	73-97	53-87	24-49	15-23	3-7
	25-35	BR			---	---	---	---	---	---	---	---
Hollis ---------	0-2	L, FSL	ML, CL-ML, SM	A-4	0	0-1	76-100	75-100	57-93	36-65	15-25	NP-5
	2-6	FSL	SM, CL-ML	A-4, A-2	0	0-1	76-100	75-100	61-98	26-51	15-25	NP-5
	6-16	CB-L, SL, FSL, ST-FSL	CL-ML, SM	A-4, A-2	0-21	3-19	69-97	68-96	50-87	23-49	15-23	3-7
	16-26	BR			---	---	---	---	---	---	---	---

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
23A:												
Fluvaquentic Endoaquolls ---	0-13	LS, SIL, L, SL	ML, OH, SM	A-6, A-7, A-4, A-5	0	0-1	76-100	75-100	61-100	48-85	18-67	2-17
	13-16	L, LS, SL, SIL	ML, OH, SM	A-4, A-6, A-5, A-7	0	0-1	76-100	75-100	57-97	39-73	18-67	2-17
	16-27	SL, L, SIL, LS	OH, ML, SM	A-5, A-7, A-4, A-6	0	0-1	76-100	75-100	57-97	39-73	18-67	2-17
	27-34	FSL, SIL, L, LS, SL	SM	A-6, A-7, A-2, A-4, A-5	0	0	100	100	66-87	29-50	18-67	2-17
24A:												
Fluventic Hapludolls ----	0-17	FSL, SL, LS, SIL, L	OH, ML	A-5, A-7, A-4, A-6	0	0-1	75-100	74-100	61-100	55-100	0-68	NP-18
	17-28	SIL, S, FSL, L, SL, LS	CL, ML	A-6, A-4	0	0-1	78-100	77-100	64-100	57-100	0-39	NP-19
	28-40	LS, SL, FSL, L, S, SIL	CL, ML	A-6, A-4	0	0-1	78-100	77-100	64-100	57-100	0-39	NP-19
25A:												
Fluventic Hapludolls ----	0-17	LS, L, FSL, SL, SIL	OH, ML	A-5, A-4, A-6, A-7	0	0-1	75-100	74-100	61-100	55-100	0-68	NP-18
	17-28	SIL, L, S, LS, SL, FSL	CL, ML	A-4, A-6	0	0-1	78-100	77-100	64-100	57-100	0-39	NP-19
	28-40	L, SL, S, SIL, FSL, LS	CL, ML	A-4, A-6	0	0-1	78-100	77-100	64-100	57-100	0-39	NP-19
26A:												
Greenbelt ------	0-4	SL, L	CL-ML, ML, SM	A-4, A-7, A-5, A-6	0	0-1	78-100	77-100	55-91	31-61	19-49	3-18
	4-15	L, GR-FSL, SL, VFSL, GR-SL, STV-FSL, CB-SL, CB-FSL	SC-SM, SM	A-2, A-7, A-4, A-6, A-5	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	FSL, GR-FSL, SL, STV-FSL, VFSL, CB-SL, CB-FSL, GR-SL, L	SC-SM, SM	A-2, A-4, A-5, A-6, A-7	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	SL, ST-LCOS, L, CB-FSL, SIL, CB-SIL, CB-LFS, FSL	SC-SM, CL, SM	A-2, A-4, A-6	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
27B:												
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	55-91	31-61	19-49	3-18
	4-15	CB-SL, VFSL, SL, GR-FSL, GR-SL, STV-FSL, CB-FSL, L	SC-SM, SM	A-7, A-6, A-4, A-5, A-2	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	GR-FSL, SL, STV-FSL, VFSL, FSL, L, CB-FSL, GR-SL, CB-SL	SC-SM, SM	A-4, A-5, A-2, A-7, A-6	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	CB-FSL, CB-LFS, CB-SIL, FSL, ST-LCOS, SL, L, SIL	SC-SM, CL, SM	A-6, A-4, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
28C:												
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	55-91	31-61	19-49	3-18
	4-15	GR-FSL, L, CB-FSL, STV-FSL, GR-SL, SL, CB-SL, VFSL	SC-SM, SM	A-5, A-7, A-2, A-6, A-4	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	SL, GR-FSL, FSL, STV-FSL, CB-FSL, VFSL, CB-SL, GR-SL, L	SC-SM, SM	A-7, A-6, A-5, A-4, A-2	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	SIL, CB-SIL, CB-LFS, L, SL, ST-LCOS, CB-FSL, FSL	SC-SM, CL, SM	A-2, A-4, A-6	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
29D:												
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	CB-FSL, L, GR-FSL, GR-SL, STV-FSL, SL, VFSL, CB-SL	SC-SM, SM	A-7, A-5, A-2, A-4, A-6	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	L, CB-FSL, SL, GR-FSL, FSL, STV-FSL, CB-SL, VFSL, GR-SL	SC-SM, SM	A-6, A-5, A-4, A-2, A-7	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	CB-FSL, CB-LFS, CB-SIL, SIL, L, SL, ST-LCOS, FSL	SC-SM, CL, SM	A-4, A-6, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
30E:												
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	CB-SL, VFSL, SL, GR-FSL, L, CB-FSL, STV-FSL, GR-SL	SC-SM, SM	A-5, A-2, A-7, A-6, A-4	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	CB-SL, FSL, GR-FSL, SL, STV-FSL, VFSL, GR-SL, L, CB-FSL	SC-SM, SM	A-2, A-4, A-5, A-6, A-7	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	CB-LFS, CB-SIL, SIL, L, SL, ST-LCOS, FSL, CB-FSL	SC-SM, CL, SM	A-2, A-4, A-6	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
31F:												
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-5, A-4, A-7, A-6	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	CB-SL, GR-SL, VFSL, SL, GR-FSL, L, CB-FSL, STV-FSL	SC-SM, SM	A-6, A-2, A-7, A-5, A-4	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	GR-SL, CB-SL, VFSL, STV-FSL, GR-FSL, FSL, SL, L, CB-FSL	SC-SM, SM	A-7, A-2, A-4, A-5, A-6	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	CB-LFS, CB-FSL, SIL, L, SL, FSL, CB-SIL, ST-LCOS	SC-SM, CL, SM	A-6, A-2, A-4	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
32A:												
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	L, CB-SL, VFSL, SL, GR-FSL, CB-FSL, STV-FSL, GR-SL	SC-SM, SM	A-2, A-7, A-5, A-4, A-6	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	FSL, CB-FSL, L, GR-SL, CB-SL, VFSL, STV-FSL, SL, GR-FSL	SC-SM, SM	A-4, A-5, A-6, A-7, A-2	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	SIL, CB-FSL, CB-LFS, CB-SIL, L, SL, ST-LCOS, FSL	SC-SM, CL, SM	A-4, A-6, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
Centralpark ----	0-4	L, SIL, CBV-SL, FSL, SL	SM, SC	A-1, A-2, A-4	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	STV-COSL, STV-SL, SL, CB-SL, SIL, L	SM, GM, SC	A-4, A-1, A-2	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-72	CBX-LS, FLV-VFSL, FLV-COSL, STX-SL, STV-COSL, CBX-SL	SM, SC, GP-GM	A-1, A-4, A-2	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10
33B:												
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-7, A-6, A-5, A-4	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	CB-SL, VFSL, SL, GR-FSL, L, CB-FSL, STV-FSL, GR-SL	SC-SM, SM	A-2, A-7, A-5, A-6, A-4	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	CB-FSL, L, GR-SL, CB-SL, VFSL, STV-FSL, SL, GR-FSL, FSL	SC-SM, SM	A-4, A-5, A-6, A-7, A-2	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	CB-FSL, CB-LFS, CB-SIL, SIL, L, SL, ST-LCOS, FSL	SC-SM, CL, SM	A-4, A-2, A-6	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
Centralpark ----	0-4	L, SIL, CBV-SL, FSL, SL	SM, SC	A-4, A-2, A-1	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	STV-SL, STV-COSL, SL, CB-SL, L, SIL	SM, GM, SC	A-1, A-2, A-4	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-72	CBX-LS, STX-SL, STV-COSL, FLV-COSL, FLV-VFSL, CBX-SL	SM, SC, GP-GM	A-4, A-2, A-1	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
34F:												
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-5, A-6, A-4, A-7	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	GR-SL, STV-FSL, CB-FSL, GR-FSL, VFSL, CB-SL, SL, L	SC-SM, SM	A-5, A-4, A-2, A-7, A-6	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	CB-FSL, L, GR-SL, CB-SL, VFSL, STV-FSL, SL, GR-FSL, FSL	SC-SM, SM	A-2, A-4, A-5, A-7, A-6	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	CB-FSL, CB-LFS, CB-SIL, SIL, L, SL, ST-LCOS, FSL	SC-SM, CL, SM	A-6, A-4, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
Laguardia ------	0-5	L, SL	SM, SC-SM	A-4, A-2-4, A-5	0	0-1	78-100	77-100	55-81	24-48	20-54	4
	5-8	SL, CBV-SL, STX-SL	SM	A-6, A-1-b, A-2-4	0-50	0-25	69-100	68-100	46-83	17-41	0-40	NP-12
	8-16	CBX-SL, CBV-LS, CBV-SL, GR-SL, GRV-LS, CBX-LS	GM, GP-GM, SC	A-1-a, A-1-b, A-2-4	0-63	0-31	25-84	22-84	15-65	5-30	0-28	NP-10
	16-29	CBX-LS, CBX-SL, CBV-SL, CBV-LS, GRV-LS, GR-SL	SM, GP-GM, SC	A-2-4, A-2-6, A-1-a	7-35	7-57	25-72	22-71	15-59	5-29	0-31	NP-12
	29-40	CBX-SL, CBV-SL, GRV-LS, CBV-LS, CBX-LS, GR-SL	SM, SC	A-2-6, A-2-4	0	12-41	67-83	66-82	44-68	16-33	0-31	NP-12
35A:												
Greenbelt cemetery, deep water table phase----------	0-7	L, SL	ML, OH, SM	A-7-5, A-4	0	0-26	75-100	74-100	61-98	37-65	0-61	NP-11
	7-24	SL, L	CL-ML, ML, SM	A-4, A-6	0	0-22	79-100	78-100	64-98	39-65	0-40	NP-12
	24-32	L, SL	CL-ML, ML, SM	A-2-4, A-4, A-6	0	0-22	79-100	78-100	55-85	33-57	0-40	NP-12
	32-36	L, S, SL	SM, SC-SM, SP-SM	A-3, A-2-4	0	0-22	79-100	78-100	59-85	8-19	0-24	NP-6
	36-60	S, SL, L	SM, SC	A-6, A-2-4, A-4	0	0-22	79-100	78-100	58-89	28-50	0-31	NP-12
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-1-a, A-2-4	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
36A:												
Greenbelt cemetery, very deep water table phase----	0-6	GRV-SL, SL, L	ML, CL-ML, GM	A-6, A-4, A-1, A-7, A-5, A-2	0	0	46-98	44-98	34-92	22-67	0-41	NP-11
	6-14	SL, L	SC-SM, SM, GM	A-1, A-2, A-4, A-6	0	0	58-98	57-98	38-83	17-46	0-37	NP-11
	14-28	SL, L	SC-SM, SM, GM	A-6, A-1, A-2, A-4	0	0	59-98	57-98	38-82	17-46	0-37	NP-11
	28-35	SL, L	CL-ML, ML, GM	A-2, A-4, A-6	0	0	59-98	58-98	44-92	30-67	0-37	NP-11
	35-50	CB-SL, L, GR-SL, S, SL	ML, CL, GM	A-6, A-4, A-2	0	0	59-98	58-98	44-91	28-64	0-30	NP-11

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-2-4, A-1-a	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
37B:												
Greenbelt cemetery, very deep water table phase----	0-6	L, SL, GRV-SL	ML, CL-ML, GM	A-4, A-1, A-2, A-5, A-6, A-7	0	0	46-98	44-98	34-92	22-67	0-41	NP-11
	6-14	SL, L	SC-SM, SM, GM	A-6, A-4, A-2, A-1	0	0	58-98	57-98	38-83	17-46	0-37	NP-11
	14-28	L, SL	SC-SM, SM, GM	A-1, A-6, A-4, A-2	0	0	59-98	57-98	38-82	17-46	0-37	NP-11
	28-35	SL, L	CL-ML, ML, GM	A-2, A-4, A-6	0	0	59-98	58-98	44-92	30-67	0-37	NP-11
	35-50	L, GR-SL, CB-SL, SL, S	ML, CL, GM	A-2, A-4, A-6	0	0	59-98	58-98	44-91	28-64	0-30	NP-11
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-2-4, A-1-a	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
38C:												
Greenbelt cemetery, very deep water table phase----	0-6	GRV-SL, SL, L	ML, CL-ML, GM	A-7, A-2, A-1, A-5, A-6, A-4	0	0	46-98	44-98	34-92	22-67	0-41	NP-11
	6-14	L, SL	SC-SM, SM, GM	A-6, A-4, A-2, A-1	0	0	58-98	57-98	38-83	17-46	0-37	NP-11
	14-28	L, SL	SC-SM, SM, GM	A-6, A-4, A-2, A-1	0	0	59-98	57-98	38-82	17-46	0-37	NP-11
	28-35	SL, L	CL-ML, ML, GM	A-2, A-6, A-4	0	0	59-98	58-98	44-92	30-67	0-37	NP-11
	35-50	GR-SL, S, SL, CB-SL, L	ML, CL, GM	A-6, A-2, A-4	0	0	59-98	58-98	44-91	28-64	0-30	NP-11
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-2-4, A-1-a	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
39D:												
Greenbelt cemetery, very deep water table phase----	0-6	L, SL, GRV-SL	ML, CL-ML, GM	A-4, A-1, A-7, A-6, A-5, A-2	0	0	46-98	44-98	34-92	22-67	0-41	NP-11
	6-14	SL, L	SC-SM, SM, GM	A-1, A-2, A-6, A-4	0	0	58-98	57-98	38-83	17-46	0-37	NP-11
	14-28	L, SL	SC-SM, SM, GM	A-6, A-4, A-1, A-2	0	0	59-98	57-98	38-82	17-46	0-37	NP-11
	28-35	L, SL	CL-ML, ML, GM	A-4, A-6, A-2	0	0	59-98	58-98	44-92	30-67	0-37	NP-11
	35-50	SL, S, CB-SL, GR-SL, L	ML, CL, GM	A-6, A-4, A-2	0	0	59-98	58-98	44-91	28-64	0-30	NP-11
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-1-a, A-2-4	0	0	59-80	57-79	42-71	14-32	0-28	NP-10

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
40E:												
Greenbelt cemetery, very deep water table phase----	0-6	GRV-SL, SL, L	ML, CL-ML, GM	A-1, A-7, A-6, A-2, A-4, A-5	0	0	46-98	44-98	34-92	22-67	0-41	NP-11
	6-14	SL, L	SC-SM, SM, GM	A-6, A-1, A-2, A-4	0	0	58-98	57-98	38-83	17-46	0-37	NP-11
	14-28	L, SL	SC-SM, SM, GM	A-4, A-1, A-2, A-6	0	0	59-98	57-98	38-82	17-46	0-37	NP-11
	28-35	L, SL	CL-ML, ML, GM	A-6, A-2, A-4	0	0	59-98	58-98	44-92	30-67	0-37	NP-11
	35-50	L, GR-SL, CB-SL, SL, S	ML, CL, GM	A-2, A-4, A-6	0	0	59-98	58-98	44-91	28-64	0-30	NP-11
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-1-a, A-2-4	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
41F:												
Centralpark very rubbly phase---	0-4	L, SL, FSL, CBV-SL, SIL	SM, SC	A-2, A-1, A-4	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	SIL, L, STV-COSL, CB-SL, SL, STV-SL	SM, GM, SC	A-1, A-4, A-2	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-40	CBX-SL, CBX-LS, FLV-VFSL, FLV-COSL, STX-SL, STV-COSL	SM, SC, GP-GM	A-4, A-1, A-2	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10
42G:												
Centralpark very rubbly phase---	0-4	CBV-SL, L, SIL, FSL, SL	SM, SC	A-4, A-2, A-1	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	L, SIL, STV-SL, STV-COSL, CB-SL, SL	SM, GM, SC	A-4, A-2, A-1	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-40	CBX-SL, CBX-LS, FLV-VFSL, FLV-COSL, STX-SL, STV-COSL	SM, SC, GP-GM	A-4, A-1, A-2	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10
43F:												
Centralpark very rubbly phase---	0-4	FSL, CBV-SL, SIL, SL, L	SM, SC	A-2, A-4, A-1	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	STV-COSL, STV-SL, SL, CB-SL, L, SIL	SM, GM, SC	A-4, A-2, A-1	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-40	STV-COSL, STX-SL, FLV-COSL, FLV-VFSL, CBX-LS, CBX-SL	SM, SC, GP-GM	A-1, A-4, A-2	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10
44G:												
Centralpark very rubbly phase---	0-4	L, FSL, CBV-SL, SIL, SL	SM, SC	A-2, A-4, A-1	0	0-65	68-100	66-100	44-74	24-43	20-30	2-10
	4-12	SL, SIL, L, CB-SL, STV-SL, STV-COSL	SM, GM, SC	A-1, A-2, A-4	0	3-37	36-92	34-92	25-76	14-48	20-30	2-10
	12-40	STV-COSL, CBX-LS, FLV-VFSL, CBX-SL, STX-SL, FLV-COSL	SM, SC, GP-GM	A-2, A-4, A-1	13-30	24-51	29-79	28-79	19-61	11-40	15-25	2-10

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
45A:												
Holderton ------	0-11	SIL	ML, OH, SM	A-7, A-6, A-5, A-4	0	0-1	76-100	75-100	69-100	49-80	0-61	NP-11
	11-22	SIL, SL, L	CL-ML, ML	A-6, A-4	0	0-1	78-100	77-100	70-100	51-81	0-40	NP-12
	22-31	SL, SIL, L	CL-ML, ML, SM	A-6, A-4	0	0-1	78-100	78-100	72-100	48-73	18-40	3-12
	31-42	L, LS, SIL, SL, FSL	ML, CL-ML, CL	A-6, A-4	0	0-1	80-100	79-100	76-100	52-76	18-31	3-12
46A:												
Holderton ------	0-11	SIL	ML, OH, SM	A-7, A-5, A-4, A-6	0	0-1	76-100	75-100	69-100	49-80	0-61	NP-11
	11-22	SIL, L, SL	CL-ML, ML	A-4, A-6	0	0-1	78-100	77-100	70-100	51-81	0-40	NP-12
	22-31	L, SIL, SL	CL-ML, ML, SM	A-4, A-6	0	0-1	78-100	78-100	72-100	48-73	18-40	3-12
	31-42	FSL, LS, L, SL, SIL	ML, CL-ML, CL	A-4, A-6	0	0-1	80-100	79-100	76-100	52-76	18-31	3-12
Fluvaquentic Endoaquolls ---	0-13	LS, L, SL, SIL	ML, OH, SM	A-7, A-4, A-5, A-6	0	0-1	76-100	75-100	61-100	48-85	18-67	2-17
	13-16	SIL, SL, LS, L	ML, OH, SM	A-6, A-7, A-5, A-4	0	0-1	76-100	75-100	57-97	39-73	18-67	2-17
	16-27	SIL, L, LS, SL	OH, ML, SM	A-7, A-6, A-5, A-4	0	0-1	76-100	75-100	57-97	39-73	18-67	2-17
	27-34	FSL, SL, LS, L, SIL	SM	A-6, A-7, A-2, A-4, A-5	0	0	100	100	66-87	29-50	18-67	2-17
47A:												
Holderton ------	0-11	SIL	ML, OH, SM	A-4, A-7, A-6, A-5	0	0-1	76-100	75-100	69-100	49-80	0-61	NP-11
	11-22	SL, L, SIL	CL-ML, ML	A-4, A-6	0	0-1	78-100	77-100	70-100	51-81	0-40	NP-12
	22-31	SL, L, SIL	CL-ML, ML, SM	A-6, A-4	0	0-1	78-100	78-100	72-100	48-73	18-40	3-12
	31-42	FSL, L, SL, SIL, LS	ML, CL-ML, CL	A-6, A-4	0	0-1	80-100	79-100	76-100	52-76	18-31	3-12
Olinville ------	0-10	L, FSL, SL, SIL	CL-ML, ML, GM	A-7, A-6, A-5, A-2, A-4	0	0-22	63-100	61-100	49-95	33-69	0-42	NP-12
	10-20	SIL, SL, FSL, L	SC-SM, SM	A-2, A-6, A-4	0	0-28	94-100	94-100	66-85	31-48	0-40	NP-12
	20-24	SIL, SL, FSL, L	CL-ML, OH, ML	A-4, A-7, A-6, A-5	0	0-12	84-100	83-100	70-99	55-81	0-50	NP-11
	24-28	FSL, SL, SIL, L	CL-ML, ML	A-4, A-5, A-6, A-7	0	0-12	84-100	84-100	70-99	54-80	0-46	NP-12
	28-33	SIL, SL, FSL, L	CL-ML, OH, SM	A-5, A-6, A-7, A-4	0	0-12	85-100	84-100	67-95	46-69	0-50	NP-11
	33-39	SIL, FSL, L, SL	SC-SM, SM	A-6, A-4, A-2	0	0-11	86-100	85-100	71-99	25-45	0-40	NP-12
	39-42	S, LS, SIL, SL, FSL, L	SC-SM, SC, SM	A-4, A-2, A-6	0	0-11	86-100	85-100	72-99	30-50	0-35	NP-12
48A:												
Laguardia very stony phase----	0-5	SL, L	SM, SC-SM	A-2-4, A-5, A-4	0	0-1	78-100	77-100	55-81	24-48	20-54	4
	5-8	SL, CBV-SL, STX-SL	SM	A-2-4, A-6, A-1-b	0-50	0-25	69-100	68-100	46-83	17-41	0-40	NP-12
	8-16	CBX-SL, GRV-LS, CBV-SL, CBX-LS, GR-SL, CBV-LS	GM, GP-GM, SC	A-1-b, A-1-a, A-2-4	0-63	0-31	25-84	22-84	15-65	5-30	0-28	NP-10
	16-29	CBX-SL, GRV-LS, GR-SL, CBV-LS, CBX-LS, CBV-SL	SM, GP-GM, SC	A-1-a, A-2-6, A-2-4	7-35	7-57	25-72	22-71	15-59	5-29	0-31	NP-12
	29-40	GRV-LS, CBV-LS, CBX-LS, GR-SL, CBV-SL, CBX-SL	SM, SC	A-2-4, A-2-6	0	12-41	67-83	66-82	44-68	16-33	0-31	NP-12

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
49B:												
Laguardia very stony phase----	0-5	L, SL	SM, SC-SM	A-4, A-2-4, A-5	0	0-1	78-100	77-100	55-81	24-48	20-54	4
	5-8	STX-SL, CBV-SL, SL	SM	A-2-4, A-1-b, A-6	0-50	0-25	69-100	68-100	46-83	17-41	0-40	NP-12
	8-16	CBX-SL, CBV-LS, CBX-LS, GR-SL, CBV-SL, GRV-LS	GM, GP-GM, SC	A-1-a, A-2-4, A-1-b	0-63	0-31	25-84	22-84	15-65	5-30	0-28	NP-10
	16-29	GRV-LS, CBV-LS, CBX-LS, CBV-SL, CBX-SL, GR-SL	SM, GP-GM, SC	A-1-a, A-2-6, A-2-4	7-35	7-57	25-72	22-71	15-59	5-29	0-31	NP-12
	29-40	CBX-SL, CBV-SL, GR-SL, CBX-LS, CBV-LS, GRV-LS	SM, SC	A-2-6, A-2-4	0	12-41	67-83	66-82	44-68	16-33	0-31	NP-12
50C:												
Laguardia very stony phase----	0-5	SL, L	SM, SC-SM	A-5, A-4, A-2-4	0	0-1	78-100	77-100	55-81	24-48	20-54	4
	5-8	SL, CBV-SL, STX-SL	SM	A-1-b, A-2-4, A-6	0-50	0-25	69-100	68-100	46-83	17-41	0-40	NP-12
	8-16	CBV-SL, CBX-LS, GRV-LS, CBX-SL, CBV-LS, GR-SL	GM, GP-GM, SC	A-2-4, A-1-a, A-1-b	0-63	0-31	25-84	22-84	15-65	5-30	0-28	NP-10
	16-29	CBV-LS, CBX-LS, GR-SL, CBV-SL, CBX-SL, GRV-LS	SM, GP-GM, SC	A-2-6, A-2-4, A-1-a	7-35	7-57	25-72	22-71	15-59	5-29	0-31	NP-12
	29-40	CBV-LS, GRV-LS, CBX-LS, GR-SL, CBV-SL, CBX-SL	SM, SC	A-2-4, A-2-6	0	12-41	67-83	66-82	44-68	16-33	0-31	NP-12
51A:												
Laguardia ------	0-5	SL, L	SM, SC-SM	A-5, A-2-4, A-4	0	0-1	78-100	77-100	55-81	24-48	20-54	4
	5-8	CBV-SL, STX-SL, SL	SM	A-2-4, A-1-b, A-6	0-50	0-25	69-100	68-100	46-83	17-41	0-40	NP-12
	8-16	CBV-SL, GRV-LS, CBV-LS, CBX-LS, GR-SL, CBX-SL	GM, GP-GM, SC	A-1-b, A-1-a, A-2-4	0-63	0-31	25-84	22-84	15-65	5-30	0-28	NP-10
	16-29	CBV-LS, GR-SL, CBX-LS, GRV-LS, CBV-SL, CBX-SL	SM, GP-GM, SC	A-2-4, A-1-a, A-2-6	7-35	7-57	25-72	22-71	15-59	5-29	0-31	NP-12
	29-40	CBX-LS, CBV-SL, GR-SL, CBX-SL, CBV-LS, GRV-LS	SM, SC	A-2-6, A-2-4	0	12-41	67-83	66-82	44-68	16-33	0-31	NP-12
52B:												
Laguardia ------	0-5	L, SL	SM, SC-SM	A-5, A-4, A-2-4	0	0-1	78-100	77-100	55-81	24-48	20-54	4
	5-8	SL, CBV-SL, STX-SL	SM	A-6, A-1-b, A-2-4	0-50	0-25	69-100	68-100	46-83	17-41	0-40	NP-12
	8-16	GRV-LS, CBV-LS, CBX-LS, CBV-SL, GR-SL, CBX-SL	GM, GP-GM, SC	A-1-b, A-2-4, A-1-a	0-63	0-31	25-84	22-84	15-65	5-30	0-28	NP-10
	16-29	CBV-LS, CBX-SL, CBV-SL, GR-SL, GRV-LS, CBX-LS	SM, GP-GM, SC	A-2-6, A-1-a, A-2-4	7-35	7-57	25-72	22-71	15-59	5-29	0-31	NP-12
	29-40	CBX-SL, CBX-LS, CBV-LS, GRV-LS, GR-SL, CBV-SL	SM, SC	A-2-6, A-2-4	0	12-41	67-83	66-82	44-68	16-33	0-31	NP-12

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
53C:												
Laguardia ------	0-5	SL, L	SM, SC-SM	A-2-4, A-4, A-5	0	0-1	78-100	77-100	55-81	24-48	20-54	4
	5-8	STX-SL, CBV-SL, SL	SM	A-6, A-1-b, A-2-4	0-50	0-25	69-100	68-100	46-83	17-41	0-40	NP-12
	8-16	GR-SL, CBX-LS, CBX-SL, CBV-SL, CBV-LS, GRV-LS	GM, GP-GM, SC	A-2-4, A-1-b, A-1-a	0-63	0-31	25-84	22-84	15-65	5-30	0-28	NP-10
	16-29	CBX-SL, CBV-SL, GR-SL, CBX-LS, GRV-LS, CBV-LS	SM, GP-GM, SC	A-2-6, A-2-4, A-1-a	7-35	7-57	25-72	22-71	15-59	5-29	0-31	NP-12
	29-40	GRV-LS, CBV-LS, CBX-LS, CBV-SL, CBX-SL, GR-SL	SM, SC	A-2-4, A-2-6	0	12-41	67-83	66-82	44-68	16-33	0-31	NP-12
54D:												
Laguardia ------	0-5	L, SL	SM, SC-SM	A-2-4, A-4, A-5	0	0-1	78-100	77-100	55-81	24-48	20-54	4
	5-8	STX-SL, CBV-SL, SL	SM	A-6, A-1-b, A-2-4	0-50	0-25	69-100	68-100	46-83	17-41	0-40	NP-12
	8-16	CBX-SL, CBV-SL, CBX-LS, GR-SL, GRV-LS, CBV-LS	GM, GP-GM, SC	A-1-b, A-1-a, A-2-4	0-63	0-31	25-84	22-84	15-65	5-30	0-28	NP-10
	16-29	CBX-SL, CBV-SL, GR-SL, CBX-LS, CBV-LS, GRV-LS	SM, GP-GM, SC	A-2-6, A-1-a, A-2-4	7-35	7-57	25-72	22-71	15-59	5-29	0-31	NP-12
	29-40	CBX-LS, CBV-LS, GRV-LS, CBV-SL, GR-SL, CBX-SL	SM, SC	A-2-6, A-2-4	0	12-41	67-83	66-82	44-68	16-33	0-31	NP-12
55E:												
Laguardia ------	0-5	SL, L	SM, SC-SM	A-5, A-4, A-2-4	0	0-1	78-100	77-100	55-81	24-48	20-54	4
	5-8	SL, STX-SL, CBV-SL	SM	A-2-4, A-1-b, A-6	0-50	0-25	69-100	68-100	46-83	17-41	0-40	NP-12
	8-16	GRV-LS, CBV-LS, CBX-LS, CBV-SL, CBX-SL, GR-SL	GM, GP-GM, SC	A-1-b, A-1-a, A-2-4	0-63	0-31	25-84	22-84	15-65	5-30	0-28	NP-10
	16-29	CBV-LS, CBX-LS, CBV-SL, GRV-LS, CBX-SL, GR-SL	SM, GP-GM, SC	A-2-4, A-1-a, A-2-6	7-35	7-57	25-72	22-71	15-59	5-29	0-31	NP-12
	29-40	CBX-SL, CBV-SL, CBX-LS, CBV-LS, GRV-LS, GR-SL	SM, SC	A-2-4, A-2-6	0	12-41	67-83	66-82	44-68	16-33	0-31	NP-12
56F:												
Laguardia ------	0-5	SL, L	SM, SC-SM	A-2-4, A-4, A-5	0	0-1	78-100	77-100	55-81	24-48	20-54	4
	5-8	STX-SL, CBV-SL, SL	SM	A-2-4, A-6, A-1-b	0-50	0-25	69-100	68-100	46-83	17-41	0-40	NP-12
	8-16	CBV-LS, GRV-LS, CBX-LS, GR-SL, CBV-SL, CBX-SL	GM, GP-GM, SC	A-1-a, A-2-4, A-1-b	0-63	0-31	25-84	22-84	15-65	5-30	0-28	NP-10
	16-29	CBX-SL, CBV-LS, GR-SL, CBX-LS, GRV-LS, CBV-SL	SM, GP-GM, SC	A-2-4, A-1-a, A-2-6	7-35	7-57	25-72	22-71	15-59	5-29	0-31	NP-12
	29-40	CBV-SL, GR-SL, CBX-LS, CBV-LS, GRV-LS, CBX-SL	SM, SC	A-2-4, A-2-6	0	12-41	67-83	66-82	44-68	16-33	0-31	NP-12

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
57A:												
Laguardia ------	0-5	SL, L	SM, SC-SM	A-2-4, A-5, A-4	0	0-1	78-100	77-100	55-81	24-48	20-54	4
	5-8	SL, CBV-SL, STX-SL	SM	A-2-4, A-6, A-1-b	0-50	0-25	69-100	68-100	46-83	17-41	0-40	NP-12
	8-16	CBX-LS, CBV-LS, GRV-LS, CBX-SL, CBV-SL, GR-SL	GM, GP-GM, SC	A-1-b, A-1-a, A-2-4	0-63	0-31	25-84	22-84	15-65	5-30	0-28	NP-10
	16-29	CBV-LS, CBX-LS, GRV-LS, CBX-SL, CBV-SL, GR-SL	SM, GP-GM, SC	A-2-4, A-2-6, A-1-a	7-35	7-57	25-72	22-71	15-59	5-29	0-31	NP-12
	29-40	CBX-SL, CBV-SL, GR-SL, CBX-LS, CBV-LS, GRV-LS	SM, SC	A-2-4, A-2-6	0	12-41	67-83	66-82	44-68	16-33	0-31	NP-12
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	STV-FSL, GR-SL, CB-SL, VFSL, SL, GR-FSL, L, CB-FSL	SC-SM, SM	A-5, A-7, A-2, A-6, A-4	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	GR-SL, CB-FSL, L, FSL, CB-SL, VFSL, STV-FSL, SL, GR-FSL	SC-SM, SM	A-5, A-2, A-4, A-7, A-6	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	ST-LCOS, FSL, CB-FSL, CB-LFS, CB-SIL, SIL, L, SL	SC-SM, CL, SM	A-6, A-4, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
58B:												
Laguardia ------	0-5	L, SL	SM, SC-SM	A-5, A-4, A-2-4	0	0-1	78-100	77-100	55-81	24-48	20-54	4
	5-8	CBV-SL, SL, STX-SL	SM	A-1-b, A-2-4, A-6	0-50	0-25	69-100	68-100	46-83	17-41	0-40	NP-12
	8-16	CBX-LS, CBX-SL, CBV-SL, GR-SL, CBV-LS, GRV-LS	GM, GP-GM, SC	A-1-b, A-1-a, A-2-4	0-63	0-31	25-84	22-84	15-65	5-30	0-28	NP-10
	16-29	GRV-LS, CBV-LS, CBX-LS, GR-SL, CBV-SL, CBX-SL	SM, GP-GM, SC	A-1-a, A-2-6, A-2-4	7-35	7-57	25-72	22-71	15-59	5-29	0-31	NP-12
	29-40	CBX-SL, CBV-SL, GR-SL, GRV-LS, CBX-LS, CBV-LS	SM, SC	A-2-6, A-2-4	0	12-41	67-83	66-82	44-68	16-33	0-31	NP-12
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-6, A-7, A-4, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	CB-SL, VFSL, SL, GR-FSL, L, CB-FSL, STV-FSL, GR-SL	SC-SM, SM	A-2, A-6, A-7, A-5, A-4	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	FSL, GR-FSL, SL, STV-FSL, VFSL, CB-SL, GR-SL, L, CB-FSL	SC-SM, SM	A-7, A-5, A-2, A-6, A-4	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	CB-FSL, CB-LFS, CB-SIL, SIL, L, SL, ST-LCOS, FSL	SC-SM, CL, SM	A-6, A-4, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
59A:												
Limerick -------	0-2	L, SIL	CL-ML, OH, SM	A-5, A-4, A-7, A-6	0	0-1	74-100	73-100	60-99	38-68	0-60	NP-10
	2-6	L, SIL	CL-ML, ML	A-7, A-4, A-5, A-6	0	0-1	78-100	77-100	69-100	50-83	0-45	NP-11
	6-11	VFSL, SIL, FSL	ML, SM	A-4, A-6	0	0-1	78-100	77-100	62-97	41-71	0-39	NP-11
	11-26	VFSL, FSL, SIL	CL-ML, ML	A-6, A-4	0	0-1	78-100	77-100	70-100	64-100	0-39	NP-11
	26-33	FSL, SIL, VFSL	ML, CL	A-6, A-4	0	0-1	78-100	77-100	64-99	57-90	0-39	NP-11
	33-40	FSL, SIL, VFSL	ML, SM	A-4, A-6	0	0-1	78-100	77-100	73-100	43-73	0-39	NP-11
60A:												
Natchaug -------	0-32	MUCK, MK-PEAT	PT	A-8	---	---	---	---	---	---	---	---
	32-50	SIL, L, SL	CL-ML, CL, SM	A-6, A-4	0-14	0	98-100	98-100	62-100	47-89	0-39	NP-19
61A:												
Olinville ------	0-10	FSL, SL, SIL, L	CL-ML, ML, GM	A-6, A-5, A-2, A-7, A-4	0	0-22	63-100	61-100	49-95	33-69	0-42	NP-12
	10-20	SIL, SL, FSL, L	SC-SM, SM	A-6, A-4, A-2	0	0-28	94-100	94-100	66-85	31-48	0-40	NP-12
	20-24	SL, SIL, L, FSL	CL-ML, OH, ML	A-7, A-4, A-6, A-5	0	0-12	84-100	83-100	70-99	55-81	0-50	NP-11
	24-28	SIL, SL, FSL, L	CL-ML, ML	A-4, A-5, A-6, A-7	0	0-12	84-100	84-100	70-99	54-80	0-46	NP-12
	28-33	FSL, SL, SIL, L	CL-ML, OH, SM	A-4, A-5, A-6, A-7	0	0-12	85-100	84-100	67-95	46-69	0-50	NP-11
	33-39	L, SL, SIL, FSL	SC-SM, SM	A-6, A-2, A-4	0	0-11	86-100	85-100	71-99	25-45	0-40	NP-12
	39-42	SL, SIL, FSL, S, L, LS	SC-SM, SC, SM	A-6, A-2, A-4	0	0-11	86-100	85-100	72-99	30-50	0-35	NP-12
62A:												
Pavement & Buildings tidal marsh substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS, GR-S	SM, SC	A-2-4	0	7-19	70-86	69-85	51-76	17-34	0-31	NP-10
63A:												
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-2-4, A-1-a	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
64B:												
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-1-a, A-2-4	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
65C:												
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-1-a, A-2-4	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
66A:												
Pavement & Buildings alluvium substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS, GR-S	SM, SC	A-1-b, A-2-4	0	0	59-80	57-79	42-71	14-32	0-31	NP-10

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
67A:												
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-2-4, A-1-a	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
Greenbelt ------	0-4	SL, L	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	CB-SL, VFSL, SL, GR-FSL, GR-SL, STV-FSL, CB-FSL, L	SC-SM, SM	A-6, A-4, A-5, A-7, A-2	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	GR-FSL, SL, STV-FSL, VFSL, CB-SL, FSL, L, CB-FSL, GR-SL	SC-SM, SM	A-5, A-4, A-2, A-7, A-6	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	SIL, CB-LFS, L, SL, CB-FSL, CB-SIL, FSL, ST-LCOS	SC-SM, CL, SM	A-6, A-4, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
68B:												
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-1-a, A-2-4	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
Greenbelt ------	0-4	SL, L	CL-ML, ML, SM	A-7, A-4, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	GR-FSL, SL, VFSL, CB-SL, L, GR-SL, STV-FSL, CB-FSL	SC-SM, SM	A-6, A-2, A-7, A-5, A-4	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	GR-FSL, FSL, STV-FSL, VFSL, CB-SL, L, CB-FSL, GR-SL, SL	SC-SM, SM	A-6, A-2, A-4, A-7, A-5	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	SIL, CB-SIL, CB-LFS, CB-FSL, SL, L, ST-LCOS, FSL	SC-SM, CL, SM	A-2, A-4, A-6	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
69C:												
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-1-a, A-2-4	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	CB-FSL, GR-FSL, GR-SL, STV-FSL, L, CB-SL, SL, VFSL	SC-SM, SM	A-2, A-7, A-5, A-6, A-4	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	CB-SL, GR-SL, L, STV-FSL, VFSL, SL, GR-FSL, CB-FSL, FSL	SC-SM, SM	A-5, A-6, A-7, A-4, A-2	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	FSL, ST-LCOS, SL, L, SIL, CB-SIL, CB-LFS, CB-FSL	SC-SM, CL, SM	A-6, A-4, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
70A:												
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-1-a, A-2-4	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
Greenbelt ------	0-4	SL, L	CL-ML, ML, SM	A-4, A-7, A-6, A-5	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	STV-FSL, CB-FSL, L, GR-FSL, SL, VFSL, CB-SL, GR-SL	SC-SM, SM	A-2, A-7, A-5, A-4, A-6	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	GR-FSL, VFSL, FSL, CB-FSL, L, GR-SL, CB-SL, STV-FSL, SL	SC-SM, SM	A-7, A-6, A-4, A-2, A-5	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	SIL, L, SL, ST-LCOS, CB-FSL, CB-LFS, CB-SIL, FSL	SC-SM, CL, SM	A-2, A-4, A-6	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
71B:												
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-1-a, A-2-4	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
Greenbelt ------	0-4	SL, L	CL-ML, ML, SM	A-5, A-6, A-7, A-4	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	SL, CB-SL, VFSL, GR-SL, GR-FSL, L, CB-FSL, STV-FSL	SC-SM, SM	A-5, A-6, A-2, A-7, A-4	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	GR-FSL, CB-FSL, L, GR-SL, CB-SL, VFSL, STV-FSL, SL, FSL	SC-SM, SM	A-6, A-2, A-4, A-5, A-7	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	FSL, CB-FSL, CB-LFS, CB-SIL, SIL, L, SL, ST-LCOS	SC-SM, CL, SM	A-2, A-4, A-6	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
72C:												
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-1-a, A-2-4	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
Greenbelt ------	0-4	SL, L	CL-ML, ML, SM	A-4, A-5, A-7, A-6	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	CB-SL, VFSL, SL, GR-FSL, L, CB-FSL, STV-FSL, GR-SL	SC-SM, SM	A-2, A-7, A-5, A-4, A-6	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	FSL, STV-FSL, VFSL, GR-FSL, GR-SL, L, CB-FSL, CB-SL, SL	SC-SM, SM	A-2, A-4, A-5, A-6, A-7	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	CB-FSL, CB-LFS, CB-SIL, SIL, L, SL, FSL, ST-LCOS	SC-SM, CL, SM	A-6, A-4, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
73D:												
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-1-a, A-2-4	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-5, A-4, A-7, A-6	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	CB-SL, VFSL, SL, GR-FSL, L, CB-FSL, STV-FSL, GR-SL	SC-SM, SM	A-6, A-2, A-4, A-5, A-7	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	GR-FSL, CB-FSL, L, GR-SL, CB-SL, VFSL, STV-FSL, SL, FSL	SC-SM, SM	A-5, A-6, A-7, A-4, A-2	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	FSL, CB-FSL, CB-LFS, CB-SIL, SIL, L, SL, ST-LCOS	SC-SM, CL, SM	A-6, A-4, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
74A:												
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-2-4, A-1-a	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-4, A-7, A-5, A-6	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	STV-FSL, CB-FSL, L, GR-FSL, SL, VFSL, CB-SL, GR-SL	SC-SM, SM	A-5, A-7, A-2, A-4, A-6	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	L, GR-SL, CB-SL, VFSL, STV-FSL, SL, GR-FSL, FSL, CB-FSL	SC-SM, SM	A-2, A-4, A-5, A-6, A-7	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	FSL, ST-LCOS, SL, L, SIL, CB-SIL, CB-LFS, CB-FSL	SC-SM, CL, SM	A-2, A-6, A-4	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13
Rock Outcrop ---	---	---	---	---	---	---	---	---	---	---	---	---
75B:												
Pavement & Buildings till substratum-----	0-6				---	---	---	---	---	---	---	---
	6-20				---	---	---	---	---	---	---	---
	20-72	GR-LS	SM	A-2-4, A-1-a	0	0	59-80	57-79	42-71	14-32	0-28	NP-10
Greenbelt ------	0-4	L, SL	CL-ML, ML, SM	A-5, A-6, A-7, A-4	0	0-1	78-100	77-100	63-100	44-77	19-49	3-18
	4-15	GR-SL, CB-SL, VFSL, SL, GR-FSL, L, STV-FSL, CB-FSL	SC-SM, SM	A-7, A-6, A-4, A-5, A-2	0	0-22	78-100	77-100	55-86	27-50	16-41	2-13
	15-25	STV-FSL, FSL, SL, VFSL, GR-FSL, CB-SL, CB-FSL, L, GR-SL	SC-SM, SM	A-2, A-4, A-5, A-6, A-7	0-22	0-45	74-100	73-100	62-100	23-47	16-41	2-13
	25-42	ST-LCOS, SL, L, SIL, CB-SIL, CB-LFS, FSL, CB-FSL	SC-SM, CL, SM	A-6, A-4, A-2	0	0-21	78-100	77-100	68-100	29-53	16-33	2-13

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Rock Outcrop ---	---	---	---	---	---	---	---	---	---	---	---	---
76A:												
Pootatuck ------	0-3	VFSL, L, SL, FSL	OH, ML, SM	A-2, A-4, A-5	0	0	76-100	75-100	56-92	35-64	0-60	NP-10
	3-20	FSL, SL	SM, SC-SM	A-6, A-4, A-2	0	0	78-100	77-100	52-84	22-45	0-39	NP-11
	20-29	SL, FSL	SM, SC-SM	A-4, A-2, A-6	0	0	79-100	78-100	52-84	23-46	0-39	NP-11
	29-52	SL, LFS, COS, FS	SC, SC-SM, GP-GM	A-6, A-2, A-1, A-4	0	0-18	42-100	40-100	27-84	11-46	0-30	NP-11
77B:												
Pootatuck ------	0-3	SL, FSL, VFSL, L	OH, ML, SM	A-2, A-5, A-4	0	0	76-100	75-100	56-92	35-64	0-60	NP-10
	3-20	SL, FSL	SM, SC-SM	A-2, A-4, A-6	0	0	78-100	77-100	52-84	22-45	0-39	NP-11
	20-29	SL, FSL	SM, SC-SM	A-4, A-2, A-6	0	0	79-100	78-100	52-84	23-46	0-39	NP-11
	29-52	SL, LFS, COS, FS	SC, SC-SM, GP-GM	A-4, A-1, A-2, A-6	0	0-18	42-100	40-100	27-84	11-46	0-30	NP-11
78A:												
Pootatuck ------	0-3	L, SL, FSL, VFSL	OH, ML, SM	A-2, A-5, A-4	0	0	76-100	75-100	56-92	35-64	0-60	NP-10
	3-20	FSL, SL	SM, SC-SM	A-6, A-4, A-2	0	0	78-100	77-100	52-84	22-45	0-39	NP-11
	20-29	SL, FSL	SM, SC-SM	A-2, A-6, A-4	0	0	79-100	78-100	52-84	23-46	0-39	NP-11
	29-52	FS, COS, LFS, SL	SC, SC-SM, GP-GM	A-6, A-2, A-1, A-4	0	0-18	42-100	40-100	27-84	11-46	0-30	NP-11
Fluventic Hapludolls ----	0-17	FSL, L, SIL, SL, LS	OH, ML	A-4, A-7, A-6, A-5	0	0-1	75-100	74-100	61-100	55-100	0-68	NP-18
	17-28	LS, SL, L, SIL, S, FSL	CL, ML	A-6, A-4	0	0-1	78-100	77-100	64-100	57-100	0-39	NP-19
	28-40	LS, SL, FSL, L, SIL, S	CL, ML	A-6, A-4	0	0-1	78-100	77-100	64-100	57-100	0-39	NP-19
79A:												
Pootatuck ------	0-3	SL, FSL, VFSL, L	OH, ML, SM	A-4, A-2, A-5	0	0	76-100	75-100	56-92	35-64	0-60	NP-10
	3-20	FSL, SL	SM, SC-SM	A-6, A-4, A-2	0	0	78-100	77-100	52-84	22-45	0-39	NP-11
	20-29	SL, FSL	SM, SC-SM	A-6, A-2, A-4	0	0	79-100	78-100	52-84	23-46	0-39	NP-11
	29-52	SL, FS, LFS, COS	SC, SC-SM, GP-GM	A-2, A-4, A-1, A-6	0	0-18	42-100	40-100	27-84	11-46	0-30	NP-11
Olinville ------	0-10	SIL, SL, L, FSL	CL-ML, ML, GM	A-4, A-6, A-5, A-2, A-7	0	0-22	63-100	61-100	49-95	33-69	0-42	NP-12
	10-20	SIL, SL, FSL, L	SC-SM, SM	A-6, A-2, A-4	0	0-28	94-100	94-100	66-85	31-48	0-40	NP-12
	20-24	FSL, L, SIL, SL	CL-ML, OH, ML	A-5, A-6, A-7, A-4	0	0-12	84-100	83-100	70-99	55-81	0-50	NP-11
	24-28	L, FSL, SL, SIL	CL-ML, ML	A-4, A-5, A-6, A-7	0	0-12	84-100	84-100	70-99	54-80	0-46	NP-12
	28-33	L, FSL, SL, SIL	CL-ML, OH, SM	A-7, A-6, A-5, A-4	0	0-12	85-100	84-100	67-95	46-69	0-50	NP-11
	33-39	L, FSL, SL, SIL	SC-SM, SM	A-6, A-2, A-4	0	0-11	86-100	85-100	71-99	25-45	0-40	NP-12
	39-42	L, FSL, SL, SIL, LS, S	SC-SM, SC, SM	A-6, A-2, A-4	0	0-11	86-100	85-100	72-99	30-50	0-35	NP-12

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
80A:												
Pootatuck ------	0-3	SL, FSL, VFSL, L	OH, ML, SM	A-5, A-4, A-2	0	0	76-100	75-100	56-92	35-64	0-60	NP-10
	3-20	FSL, SL	SM, SC-SM	A-2, A-4, A-6	0	0	78-100	77-100	52-84	22-45	0-39	NP-11
	20-29	FSL, SL	SM, SC-SM	A-4, A-2, A-6	0	0	79-100	78-100	52-84	23-46	0-39	NP-11
	29-52	SL, LFS, COS, FS	SC, SC-SM, GP-GM	A-1, A-4, A-2, A-6	0	0-18	42-100	40-100	27-84	11-46	0-30	NP-11
Suncook --------	0-2	FSL, SL, LFS, LS	SM	A-2, A-5, A-4	0	0	83-100	82-100	71-90	35-46	0-51	NP-2
	2-5	FSL, LS, LFS, SL	SM	A-2	0	0	84-100	83-100	63-80	22-31	0-51	NP-2
	5-14	LFS, LS, S, FS, COS	SM	A-2	0	0	84-100	84-100	64-81	22-31	0-40	NP-2
	14-40	COS, FS, S, LS, LFS	SM	A-2	0	0	72-100	71-100	55-81	19-31	0-20	NP-2
Olinville ------	0-10	L, FSL, SL, SIL	CL-ML, ML, GM	A-6, A-5, A-2, A-4, A-7	0	0-22	63-100	61-100	49-95	33-69	0-42	NP-12
	10-20	SIL, SL, FSL, L	SC-SM, SM	A-6, A-2, A-4	0	0-28	94-100	94-100	66-85	31-48	0-40	NP-12
	20-24	FSL, L, SL, SIL	CL-ML, OH, ML	A-6, A-5, A-7, A-4	0	0-12	84-100	83-100	70-99	55-81	0-50	NP-11
	24-28	L, FSL, SL, SIL	CL-ML, ML	A-4, A-5, A-7, A-6	0	0-12	84-100	84-100	70-99	54-80	0-46	NP-12
	28-33	L, FSL, SIL, SL	CL-ML, OH, SM	A-7, A-6, A-5, A-4	0	0-12	85-100	84-100	67-95	46-69	0-50	NP-11
	33-39	SL, L, FSL, SIL	SC-SM, SM	A-2, A-6, A-4	0	0-11	86-100	85-100	71-99	25-45	0-40	NP-12
	39-42	L, FSL, SL, SIL, LS, S	SC-SM, SC, SM	A-6, A-2, A-4	0	0-11	86-100	85-100	72-99	30-50	0-35	NP-12
81A:												
Rikers ---------	0-5	GR-SL, GR-COS, GRV-SL, COS, GRX-COS, GRV-COS	SP-SM, SC-SM, GP	A-1, A-2	0	0	27-90	24-90	12-53	2-18	0-21	NP-4
	5-60	GRV-COS, GRX-COS, GRV-LS, GR-COS	SP-SM, GW, SC-SM	A-2, A-1	0	0	31-92	28-91	13-52	3-19	0-21	NP-4
82F:												
Rikers ---------	0-5	GRV-SL, COS, GRX-COS, GRV-COS, GR-COS, GR-SL	SP-SM, SC-SM, GP	A-2, A-1	0	0	27-90	24-90	12-53	2-18	0-21	NP-4
	5-60	GRV-COS, GR-COS, GRV-LS, GRX-COS	SP-SM, GW, SC-SM	A-1, A-2	0	0	31-92	28-91	13-52	3-19	0-21	NP-4
83G:												
Rock Outcrop ---	---	---	---	---	---	---	---	---	---	---	---	---
Hollis ---------	0-2	FSL, L	ML, CL-ML, SM	A-4	0	0-1	76-100	75-100	57-93	36-65	15-25	NP-5
	2-6	FSL	SM, CL-ML	A-4, A-2	0	0-1	76-100	75-100	61-98	26-51	15-25	NP-5
	6-16	SL, ST-FSL, FSL, CB-L	CL-ML, SM	A-4, A-2	0-21	3-19	69-97	68-96	50-87	23-49	15-23	3-7
	16-26	BR			---	---	---	---	---	---	---	---
Chatfield ------	0-7	L, FSL	CL-ML, SM	A-4	0	0	80-96	79-95	57-84	36-60	16-23	3-7
	7-25	FSL, SL, ST-FSL, CB-L	SC-SM, SM	A-2, A-4	0-4	0-21	74-97	73-97	53-87	24-49	15-23	3-7
	25-35	BR			---	---	---	---	---	---	---	---

Table 5.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	Apparent field texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
84A:												
Suncook --------	0-2	LFS, SL, LS, FSL	SM	A-5, A-4, A-2	0	0	83-100	82-100	71-90	35-46	0-51	NP-2
	2-5	SL, LFS, LS, FSL	SM	A-2	0	0	84-100	83-100	63-80	22-31	0-51	NP-2
	5-14	COS, FS, LS, LFS, S	SM	A-2	0	0	84-100	84-100	64-81	22-31	0-40	NP-2
	14-40	LFS, LS, S, FS, COS	SM	A-2	0	0	72-100	71-100	55-81	19-31	0-20	NP-2
85A:												
Suncook --------	0-2	SL, FSL, LS, LFS	SM	A-4, A-2, A-5	0	0	83-100	82-100	71-90	35-46	0-51	NP-2
	2-5	SL, LS, FSL, LFS	SM	A-2	0	0	84-100	83-100	63-80	22-31	0-51	NP-2
	5-14	COS, LFS, LS, S, FS	SM	A-2	0	0	84-100	84-100	64-81	22-31	0-40	NP-2
	14-40	LFS, LS, S, FS, COS	SM	A-2	0	0	72-100	71-100	55-81	19-31	0-20	NP-2
86A:												
Tonawanda ------	0-3	SIL	ML, OH	A-4, A-5	0	0-1	90-100	90-100	80-100	69-93	0-60	NP-10
	3-15	SIL	CL-ML, ML	A-4, A-6	0	0-1	91-100	91-100	80-100	72-96	0-39	NP-11
	15-20	SIL	CL-ML, ML	A-6, A-4	0	0-1	91-100	91-100	80-100	72-96	0-39	NP-11
	20-28	SIL	CL-ML, ML	A-6, A-4	0	0-1	92-100	91-100	80-100	72-96	0-39	NP-11
	28-39	VFSL	ML, CL, SM	A-6, A-4	0	0-1	92-100	91-100	84-100	49-71	0-34	NP-11
	39-50	SL, SIL, SICL, CL, VFSL	SM, CH	A-7, A-5, A-6, A-2, A-4	0	0-1	77-100	76-100	55-100	27-76	0-50	NP-28
87B:												
Tonawanda ------	0-3	SIL	ML, OH	A-5, A-4	0	0-1	90-100	90-100	80-100	69-93	0-60	NP-10
	3-15	SIL	CL-ML, ML	A-4, A-6	0	0-1	91-100	91-100	80-100	72-96	0-39	NP-11
	15-20	SIL	CL-ML, ML	A-4, A-6	0	0-1	91-100	91-100	80-100	72-96	0-39	NP-11
	20-28	SIL	CL-ML, ML	A-4, A-6	0	0-1	92-100	91-100	80-100	72-96	0-39	NP-11
	28-39	VFSL	ML, CL, SM	A-6, A-4	0	0-1	92-100	91-100	84-100	49-71	0-34	NP-11
	39-50	SL, VFSL, CL, SICL, SIL	SM, CH	A-2, A-5, A-6, A-4, A-7	0	0-1	77-100	76-100	55-100	27-76	0-50	NP-28
88A:												
Tonawanda recreational parkland phase-	0-3	SIL	ML, OH	A-4, A-5	0	0-1	82-100	81-100	72-100	62-93	0-60	NP-10
	3-15	SIL	CL-ML, ML	A-4, A-6	0	0-1	84-100	83-100	72-100	66-96	0-39	NP-11
	15-20	SIL	CL-ML, ML	A-4, A-6	0	0-1	84-100	83-100	72-100	66-96	0-39	NP-11
	20-28	SIL	CL-ML, ML	A-6, A-4	0	0-1	84-100	83-100	73-100	66-96	0-39	NP-11
	28-39	VFSL	ML, CL, SM	A-6, A-4	0	0-1	84-100	83-100	76-100	45-71	0-34	NP-11
	39-50	SL, SIL, SICL, VFSL, CL	SM, CH	A-4, A-5, A-6, A-7, A-2	0	0-1	70-100	69-100	50-100	25-76	0-50	NP-28
89B:												
Tonawanda recreational parkland phase-	0-3	SIL	ML, OH	A-5, A-4	0	0-1	82-100	81-100	72-100	62-93	0-60	NP-10
	3-15	SIL	CL-ML, ML	A-6, A-4	0	0-1	84-100	83-100	72-100	66-96	0-39	NP-11
	15-20	SIL	CL-ML, ML	A-4, A-6	0	0-1	84-100	83-100	72-100	66-96	0-39	NP-11
	20-28	SIL	CL-ML, ML	A-6, A-4	0	0-1	84-100	83-100	73-100	66-96	0-39	NP-11
	28-39	VFSL	ML, CL, SM	A-6, A-4	0	0-1	84-100	83-100	76-100	45-71	0-34	NP-11
	39-50	VFSL, CL, SICL, SIL, SL	SM, CH	A-4, A-5, A-6, A-7, A-2	0	0-1	70-100	69-100	50-100	25-76	0-50	NP-28
W:												
Water ----------	---	---	---	---	---	---	---	---	---	---	---	---

Table 6.--Physical Properties

Table 6 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In table 6, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In table 6, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 6, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

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

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 6, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 6 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of rock fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Bronx County, New York

Table 6.--Physical Soil Properties

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
1A:														
Canandaigua----------	0-7	0-11- 32	50-69- 80	5-20- 27	0.81-1.38	4.01-14.00	0.09-0.21	0.0-2.9	1.0-15	.37	.37	5	8	0
	7-17	0- 7- 14	50-68- 80	5-25- 40	1.15-1.45	4.01-10.00	0.09-0.21	0.0-2.9	0.1-5.0	.49	.49			
	17-32	0- 7- 14	50-68- 80	5-25- 40	1.26-1.45	1.40-4.00	0.08-0.21	0.0-2.9	0.1-3.0	.49	.49			
	32-45	0-11- 85	0-69- 80	5-20- 40	1.37-1.45	1.40-10.00	0.09-0.22	0.0-2.9	0.1-1.0	.55	.55			
Tonawanda------------	0-3	0-21- 50	50-69- 80	0-10- 17	0.82-1.41	4.01-14.00	0.08-0.24	0.0-2.9	1.0-15	.43	.43	5	5	56
	3-15	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	4.01-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	15-20	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	4.01-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	20-28	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	3.00-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	28-39	44-61- 85	0-33- 49	0- 6- 17	1.35-1.50	3.00-14.00	0.05-0.17	0.0-2.9	0.1-3.0	.64	.64			
	39-50	0-65- 85	0-29- 80	0- 6- 40	1.42-1.50	4.01-14.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
2A:														
Centralpark----------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-5.0	.32	.32			
	12-72	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			
3B:														
Centralpark----------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-5.0	.32	.32			
	12-72	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			
4F:														
Centralpark----------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-5.0	.32	.32			
	12-72	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			
5D:														
Centralpark----------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-5.0	.32	.32			
	12-72	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
6A:														
Centralpark----------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-5.0	.32	.32			
	12-72	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors: Kw	Erosion factors: Kf	Erosion factors: T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
Rock outcrop---------	0-72	--	--	--	---	---	---	---	---	---	---	--	---	---
7B:														
Centralpark----------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-5.0	.32	.32			
	12-72	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
Rock outcrop---------	---	--	--	--	---	---	---	---	---	---	---	--	---	---
8C:														
Centralpark----------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-5.0	.32	.32			
	12-72	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
Rock outcrop---------	---	--	--	--	---	---	---	---	---	---	---	--	---	---
9D:														
Centralpark----------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-5.0	.32	.32			
	12-72	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
Rock outcrop---------	---	--	--	--	---	---	---	---	---	---	---	--	---	---

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
10D:														
Charlton-------------	0-6	32-50- 85	0-38- 50	7-12- 27	0.84-1.47	4.01-50.00	0.10-0.21	0.0-2.9	1.0-15	.24	.24	5	5	56
	6-7	32-50- 85	0-38- 50	5-12- 20	1.06-1.53	4.01-42.00	0.09-0.20	0.0-2.9	0.2-8.0	.32	.32			
	7-19	44-55- 85	0-32- 49	5-13- 20	1.20-1.55	4.01-42.00	0.04-0.11	0.0-2.9	0.1-5.0	.20	.37			
	19-37	44-55- 85	0-34- 49	5-11- 20	1.20-1.55	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	37-45	32-49- 91	0-40- 50	7-12- 27	1.33-1.55	4.01-42.00	0.09-0.19	0.0-2.9	0.1-3.0	.43	.43			
11C:														
Charlton-------------	0-6	32-50- 85	0-38- 50	7-12- 27	0.84-1.47	4.01-50.00	0.10-0.21	0.0-2.9	1.0-15	.24	.24	5	5	56
	6-7	32-50- 85	0-38- 50	5-12- 20	1.06-1.53	4.01-42.00	0.09-0.20	0.0-2.9	0.2-8.0	.32	.32			
	7-19	44-55- 85	0-32- 49	5-13- 20	1.20-1.55	4.01-42.00	0.04-0.11	0.0-2.9	0.1-5.0	.20	.37			
	19-37	44-55- 85	0-34- 49	5-11- 20	1.20-1.55	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	37-45	32-49- 91	0-40- 50	7-12- 27	1.33-1.55	4.01-42.00	0.09-0.19	0.0-2.9	0.1-3.0	.43	.43			
Chatfield------------	0-7	32-44- 85	0-40- 50	0-16- 17	0.86-1.55	4.01-50.00	0.11-0.17	0.0-2.9	1.0-15	.24	.24	2	5	56
	7-25	32-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	25-35	--	--	--	---	0.00-0.01	---	---	---	---	---			
12C:														
Charlton-------------	0-6	32-50- 85	0-38- 50	7-12- 27	0.84-1.47	4.01-50.00	0.10-0.21	0.0-2.9	1.0-15	.24	.24	5	5	56
	6-7	32-50- 85	0-38- 50	5-12- 20	1.06-1.53	4.01-42.00	0.09-0.20	0.0-2.9	0.2-8.0	.32	.32			
	7-19	44-55- 85	0-32- 49	5-13- 20	1.20-1.55	4.01-42.00	0.04-0.11	0.0-2.9	0.1-5.0	.20	.37			
	19-37	44-55- 85	0-34- 49	5-11- 20	1.20-1.55	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	37-45	32-49- 91	0-40- 50	7-12- 27	1.33-1.55	4.01-42.00	0.09-0.19	0.0-2.9	0.1-3.0	.43	.43			
Chatfield------------	0-7	32-44- 85	0-40- 50	0-16- 17	0.86-1.55	4.01-50.00	0.11-0.17	0.0-2.9	1.0-15	.24	.24	2	5	56
	7-25	32-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	25-35	--	--	--	---	0.00-0.01	---	---	---	---	---			
Rock outcrop---------	---	--	--	--	---	---	---	---	---	---	---	--	---	---
13C:														
Chatfield, recreational parkland phase------	0-4	32-71- 85	0-17- 50	7-12- 17	0.86-1.65	3.00-10.00	0.06-0.15	0.0-2.9	1.0-15	.20	.20	2	3	86
	4-22	44-68- 85	0-22- 49	0-10- 17	1.25-1.75	4.01-25.00	0.04-0.14	0.0-2.9	0.1-5.0	.43	.43			
	22-32	--	--	--	---	0.00-0.01	---	---	---	---	---			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
Hollis, recreational parkland phase------	0-7	44-71- 85	0-17- 49	0-12- 18	0.86-1.65	3.00-10.00	0.04-0.12	0.0-2.9	1.0-15	.24	.24	1	3	86
	7-11	44-67- 85	0-23- 49	0-10- 18	1.11-1.75	4.01-25.00	0.04-0.13	0.0-2.9	0.1-8.0	.37	.37			
	11-18	44-67- 85	0-23- 49	0-10- 18	1.25-1.75	4.01-25.00	0.05-0.14	0.0-2.9	0.1-5.0	.37	.37			
	18-28	--	--	--	---	0.00-0.01	---	---	---	---	---			
14D:														
Chatfield------------	0-7	32-44- 85	0-40- 50	0-16- 17	0.86-1.55	4.01-50.00	0.11-0.17	0.0-2.9	1.0-15	.24	.24	2	5	56
	7-25	32-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	25-35	--	--	--	---	0.00-0.01	---	---	---	---	---			
Charlton-------------	0-6	32-50- 85	0-38- 50	7-12- 27	0.84-1.47	4.01-50.00	0.10-0.21	0.0-2.9	1.0-15	.24	.24	5	5	56
	6-7	32-50- 85	0-38- 50	5-12- 20	1.06-1.53	4.01-42.00	0.09-0.20	0.0-2.9	0.2-8.0	.32	.32			
	7-19	44-55- 85	0-32- 49	5-13- 20	1.20-1.55	4.01-42.00	0.04-0.11	0.0-2.9	0.1-5.0	.20	.37			
	19-37	44-55- 85	0-34- 49	5-11- 20	1.20-1.55	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	37-45	32-49- 91	0-40- 50	7-12- 27	1.33-1.55	4.01-42.00	0.09-0.19	0.0-2.9	0.1-3.0	.43	.43			
15E:														
Chatfield------------	0-7	32-44- 85	0-40- 50	0-16- 17	0.86-1.55	4.01-50.00	0.11-0.17	0.0-2.9	1.0-15	.24	.24	2	5	56
	7-25	32-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	25-35	--	--	--	---	0.00-0.01	---	---	---	---	---			
Charlton-------------	0-6	32-50- 85	0-38- 50	7-12- 27	0.84-1.47	4.01-50.00	0.10-0.21	0.0-2.9	1.0-15	.24	.24	5	5	56
	6-7	32-50- 85	0-38- 50	5-12- 20	1.06-1.53	4.01-42.00	0.09-0.20	0.0-2.9	0.2-8.0	.32	.32			
	7-19	44-55- 85	0-32- 49	5-13- 20	1.20-1.55	4.01-42.00	0.04-0.11	0.0-2.9	0.1-5.0	.20	.37			
	19-37	44-55- 85	0-34- 49	5-11- 20	1.20-1.55	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	37-45	32-49- 91	0-40- 50	7-12- 27	1.33-1.55	4.01-42.00	0.09-0.19	0.0-2.9	0.1-3.0	.43	.43			
16B:														
Charlton-------------	0-6	32-50- 85	0-38- 50	7-12- 27	0.84-1.47	4.01-50.00	0.10-0.21	0.0-2.9	1.0-15	.24	.24	5	5	56
	6-7	32-50- 85	0-38- 50	5-12- 20	1.06-1.53	4.01-42.00	0.09-0.20	0.0-2.9	0.2-8.0	.32	.32			
	7-19	44-55- 85	0-32- 49	5-13- 20	1.20-1.55	4.01-42.00	0.04-0.11	0.0-2.9	0.1-5.0	.20	.37			
	19-37	44-55- 85	0-34- 49	5-11- 20	1.20-1.55	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	37-45	32-49- 91	0-40- 50	7-12- 27	1.33-1.55	4.01-42.00	0.09-0.19	0.0-2.9	0.1-3.0	.43	.43			
Chatfield------------	0-7	32-44- 85	0-40- 50	0-16- 17	0.86-1.55	4.01-50.00	0.11-0.17	0.0-2.9	1.0-15	.24	.24	2	5	56
	7-25	32-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	25-35	--	--	--	---	0.00-0.01	---	---	---	---	---			
Hollis---------------	0-2	24-50- 85	0-40- 50	0-10- 17	0.86-1.55	4.01-50.00	0.08-0.23	0.0-2.9	2.0-15	.37	.37	1	5	56
	2-6	44-66- 85	0-24- 49	0-10- 17	0.86-1.55	4.01-50.00	0.05-0.14	0.0-2.9	2.0-15	.32	.32			
	6-16	24-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.08-0.13	0.0-2.9	0.1-5.0	.20	.37			
	16-26	--	--	--	---	0.00-0.01	---	---	---	---	---			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
17B:														
Chatfield------------	0-7	32-44- 85	0-40- 50	0-16- 17	0.86-1.55	4.01-50.00	0.11-0.17	0.0-2.9	1.0-15	.24	.24	2	5	56
	7-25	32-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	25-35	--	--	--	---	0.00-0.01	---	---	---	---	---			
Hollis---------------	0-2	24-50- 85	0-40- 50	0-10- 17	0.86-1.55	4.01-50.00	0.08-0.23	0.0-2.9	2.0-15	.37	.37	1	5	56
	2-6	44-66- 85	0-24- 49	0-10- 17	0.86-1.55	4.01-50.00	0.05-0.14	0.0-2.9	2.0-15	.32	.32			
	6-16	24-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.08-0.13	0.0-2.9	0.1-5.0	.20	.37			
	16-26	--	--	--	---	0.00-0.01	---	---	---	---	---			
Rock outcrop---------	---	--	--	--	---	---	---	---	---	---	---	--	---	---
Charlton-------------	0-6	32-50- 85	0-38- 50	7-12- 27	0.84-1.47	4.01-50.00	0.10-0.21	0.0-2.9	1.0-15	.24	.24	5	5	56
	6-7	32-50- 85	0-38- 50	5-12- 20	1.06-1.53	4.01-42.00	0.09-0.20	0.0-2.9	0.2-8.0	.32	.32			
	7-19	44-55- 85	0-32- 49	5-13- 20	1.20-1.55	4.01-42.00	0.04-0.11	0.0-2.9	0.1-5.0	.20	.37			
	19-37	44-55- 85	0-34- 49	5-11- 20	1.20-1.55	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	37-45	32-49- 91	0-40- 50	7-12- 27	1.33-1.55	4.01-42.00	0.09-0.19	0.0-2.9	0.1-3.0	.43	.43			
18C:														
Chatfield, recreational parkland phase------	0-4	32-71- 85	0-17- 50	7-12- 17	0.86-1.65	3.00-10.00	0.06-0.15	0.0-2.9	1.0-15	.20	.20	2	3	86
	4-22	44-68- 85	0-22- 49	0-10- 17	1.25-1.75	4.01-25.00	0.04-0.14	0.0-2.9	0.1-5.0	.43	.43			
	22-32	--	--	--	---	0.00-0.01	---	---	---	---	---			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
Rock outcrop---------	---	--	--	--	---	---	---	---	---	---	---	--	---	---
19B:														
Chatfield, recreational parkland phase------	0-4	32-71- 85	0-17- 50	7-12- 17	0.86-1.65	3.00-10.00	0.06-0.15	0.0-2.9	1.0-15	.20	.20	2	3	86
	4-22	44-68- 85	0-22- 49	0-10- 17	1.25-1.75	4.01-25.00	0.04-0.14	0.0-2.9	0.1-5.0	.43	.43			
	22-32	--	--	--	---	0.00-0.01	---	---	---	---	---			
Hollis, recreational parkland phase------	0-7	44-71- 85	0-17- 49	0-12- 18	0.86-1.65	3.00-10.00	0.04-0.12	0.0-2.9	1.0-15	.24	.24	1	3	86
	7-11	44-67- 85	0-23- 49	0-10- 18	1.11-1.75	4.01-25.00	0.04-0.13	0.0-2.9	0.1-8.0	.37	.37			
	11-18	44-67- 85	0-23- 49	0-10- 18	1.25-1.75	4.01-25.00	0.05-0.14	0.0-2.9	0.1-5.0	.37	.37			
	18-28	--	--	--	---	0.00-0.01	---	---	---	---	---			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
20B:														
Chatfield, recreational parkland phase------	0-4	32-71- 85	0-17- 50	7-12- 17	0.86-1.65	3.00-10.00	0.06-0.15	0.0-2.9	1.0-15	.20	.20	2	3	86
	4-22	44-68- 85	0-22- 49	0-10- 17	1.25-1.75	4.01-25.00	0.04-0.14	0.0-2.9	0.1-5.0	.43	.43			
	22-32	--	--	--	---	0.00-0.01	---	---	---	---	---			
Hollis, recreational parkland phase------	0-7	44-71- 85	0-17- 49	0-12- 18	0.86-1.65	3.00-10.00	0.04-0.12	0.0-2.9	1.0-15	.24	.24	1	3	86
	7-11	44-67- 85	0-23- 49	0-10- 18	1.11-1.75	4.01-25.00	0.04-0.13	0.0-2.9	0.1-8.0	.37	.37			
	11-18	44-67- 85	0-23- 49	0-10- 18	1.25-1.75	4.01-25.00	0.05-0.14	0.0-2.9	0.1-5.0	.37	.37			
	18-28	--	--	--	---	0.00-0.01	---	---	---	---	---			
Rock outcrop---------	---	--	--	--	---	---	---	---	---	---	---	--	---	---
21D:														
Chatfield------------	0-7	32-44- 85	0-40- 50	0-16- 17	0.86-1.55	4.01-50.00	0.11-0.17	0.0-2.9	1.0-15	.24	.24	2	5	56
	7-25	32-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	25-35	--	--	--	---	0.00-0.01	---	---	---	---	---			
Hollis---------------	0-2	24-50- 85	0-40- 50	0-10- 17	0.86-1.55	4.01-50.00	0.08-0.23	0.0-2.9	2.0-15	.37	.37	1	5	56
	2-6	44-66- 85	0-24- 49	0-10- 17	0.86-1.55	4.01-50.00	0.05-0.14	0.0-2.9	2.0-15	.32	.32			
	6-16	24-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.08-0.13	0.0-2.9	0.1-5.0	.20	.37			
	16-26	--	--	--	---	0.00-0.01	---	---	---	---	---			
Rock outcrop---------	---	--	--	--	---	---	---	---	---	---	---	--	---	---
22F:														
Chatfield------------	0-7	32-44- 85	0-40- 50	0-16- 17	0.86-1.55	4.01-50.00	0.11-0.17	0.0-2.9	1.0-15	.24	.24	2	5	56
	7-25	32-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	25-35	--	--	--	---	0.00-0.01	---	---	---	---	---			
Hollis---------------	0-2	24-50- 85	0-40- 50	0-10- 17	0.86-1.55	4.01-50.00	0.08-0.23	0.0-2.9	2.0-15	.37	.37	1	5	56
	2-6	44-66- 85	0-24- 49	0-10- 17	0.86-1.55	4.01-50.00	0.05-0.14	0.0-2.9	2.0-15	.32	.32			
	6-16	24-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.08-0.13	0.0-2.9	0.1-5.0	.20	.37			
	16-26	--	--	--	---	0.00-0.01	---	---	---	---	---			
Rock outcrop---------	---	--	--	--	---	---	---	---	---	---	---	--	---	---

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
23A:														
Fluvaquentic Endoaquolls----------	0-13	0-29- 91	0-54- 80	5-17- 26	0.84-1.47	4.01-50.00	0.09-0.21	0.0-2.9	1.0-15	.32	.32	5	8	0
	13-16	0-43- 91	0-40- 80	5-17- 26	0.84-1.47	4.01-50.00	0.09-0.21	0.0-2.9	1.0-15	.28	.28			
	16-27	0-43- 91	0-40- 80	5-17- 26	0.84-1.47	4.01-50.00	0.09-0.21	0.0-2.9	1.0-15	.28	.28			
	27-34	0-64- 91	0-19- 80	5-17- 26	0.84-1.47	4.01-50.00	0.05-0.13	0.0-2.9	1.0-15	.17	.17			
24A:														
Fluventic Hapludolls-	0-17	0-14- 91	0-69- 80	0-17- 27	0.82-1.42	4.01-50.00	0.09-0.21	0.0-2.9	1.0-15	.32	.32	5	5	56
	17-28	0-14-100	0-69- 80	0-17- 27	1.42-1.50	4.01-50.00	0.09-0.22	0.0-2.9	0.1-1.0	.55	.55			
	28-40	0-14-100	0-69- 80	0-17- 27	1.42-1.50	4.01-50.00	0.09-0.22	0.0-2.9	0.1-1.0	.55	.55			
25A:														
Fluventic Hapludolls-	0-17	0-14- 91	0-69- 80	0-17- 27	0.82-1.42	4.01-50.00	0.09-0.21	0.0-2.9	1.0-15	.32	.32	5	5	56
	17-28	0-14-100	0-69- 80	0-17- 27	1.42-1.50	4.01-50.00	0.09-0.22	0.0-2.9	0.1-1.0	.55	.55			
	28-40	0-14-100	0-69- 80	0-17- 27	1.42-1.50	4.01-50.00	0.09-0.22	0.0-2.9	0.1-1.0	.55	.55			
26A:														
Greenbelt------------	0-4	32-60- 85	0-28- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
27B:														
Greenbelt------------	0-4	32-60- 85	0-28- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
28C:														
Greenbelt------------	0-4	32-60- 85	0-28- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
29D:														
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
30E:														
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
31F:														
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
32A:														
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
Centralpark----------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-5.0	.32	.32			
	12-72	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			
33B:														
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
Centralpark----------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-5.0	.32	.32			
	12-72	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			
34F:														
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
Laguardia------------	0-5	24-67- 85	0-25- 50	8- 8- 8	0.86-1.65	1.40-10.00	0.10-0.10	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	5-8	44-76- 85	0-17- 49	3- 6- 18	1.25-1.75	1.40-10.00	0.05-0.13	0.0-2.9	0.1-4.0	.20	.20			
	8-16	44-78- 91	0-16- 49	2- 6- 15	1.56-1.75	1.40-10.00	0.00-0.12	0.0-2.9	0.1-1.0	.05	.20			
	16-29	44-76- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.04-0.11	0.0-2.9	0.1-1.0	.15	.24			
	29-40	44-46- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.05-0.12	0.0-2.9	0.1-1.0	.17	.17			
35A:														
Greenbelt, cemetery, deep water table phase---------------	0-7	32-50- 85	0-39- 50	3-11- 18	0.84-1.47	4.01-25.00	0.09-0.22	0.0-2.9	1.0-15	.28	.28	5	5	56
	7-24	32-50- 85	0-39- 50	3-11- 18	1.20-1.55	4.01-25.00	0.09-0.22	0.0-2.9	0.1-5.0	.43	.43			
	24-32	32-55- 85	0-34- 50	3-11- 18	1.20-1.55	4.01-25.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	32-36	32-89-100	0- 5- 50	1- 6- 10	1.38-1.55	4.01-100.00	0.01-0.12	0.0-2.9	0.1-1.0	.15	.15			
	36-60	32-70-100	0-25- 50	3- 5- 18	1.38-1.55	4.01-25.00	0.05-0.13	0.0-2.9	0.1-1.0	.37	.37			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
36A:														
Greenbelt, cemetery, very deep water table phase---------	0-6	32-46- 85	0-44- 50	0-10- 17	0.86-1.56	4.01-25.00	0.09-0.22	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	6-14	32-66- 85	0-23- 50	0-11- 17	1.11-1.64	4.01-25.00	0.05-0.13	0.0-2.9	0.2-4.0	.28	.28			
	14-28	32-66- 85	0-23- 50	0-11- 17	1.25-1.65	4.01-25.00	0.05-0.13	0.0-2.9	0.1-4.0	.28	.28			
	28-35	32-46- 85	0-44- 50	0-10- 17	1.25-1.65	4.01-25.00	0.09-0.21	0.0-2.9	0.1-4.0	.49	.49			
	35-50	32-50-100	0-40- 50	0-10- 17	1.56-1.65	4.01-100.00	0.08-0.18	0.0-2.9	0.1-1.0	.43	.43			
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
37B:														
Greenbelt, cemetery, very deep water table phase---------	0-6	32-46- 85	0-44- 50	0-10- 17	0.86-1.56	4.01-25.00	0.09-0.22	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	6-14	32-66- 85	0-23- 50	0-11- 17	1.11-1.64	4.01-25.00	0.05-0.13	0.0-2.9	0.2-4.0	.28	.28			
	14-28	32-66- 85	0-23- 50	0-11- 17	1.25-1.65	4.01-25.00	0.05-0.13	0.0-2.9	0.1-4.0	.28	.28			
	28-35	32-46- 85	0-44- 50	0-10- 17	1.25-1.65	4.01-25.00	0.09-0.21	0.0-2.9	0.1-4.0	.49	.49			
	35-50	32-50-100	0-40- 50	0-10- 17	1.56-1.65	4.01-100.00	0.08-0.18	0.0-2.9	0.1-1.0	.43	.43			
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
38C:														
Greenbelt, cemetery, very deep water table phase---------	0-6	32-46- 85	0-44- 50	0-10- 17	0.86-1.56	4.01-25.00	0.09-0.22	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	6-14	32-66- 85	0-23- 50	0-11- 17	1.11-1.64	4.01-25.00	0.05-0.13	0.0-2.9	0.2-4.0	.28	.28			
	14-28	32-66- 85	0-23- 50	0-11- 17	1.25-1.65	4.01-25.00	0.05-0.13	0.0-2.9	0.1-4.0	.28	.28			
	28-35	32-46- 85	0-44- 50	0-10- 17	1.25-1.65	4.01-25.00	0.09-0.21	0.0-2.9	0.1-4.0	.49	.49			
	35-50	32-50-100	0-40- 50	0-10- 17	1.56-1.65	4.01-100.00	0.08-0.18	0.0-2.9	0.1-1.0	.43	.43			
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
39D:														
Greenbelt, cemetery, very deep water table phase---------	0-6	32-46- 85	0-44- 50	0-10- 17	0.86-1.56	4.01-25.00	0.09-0.22	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	6-14	32-66- 85	0-23- 50	0-11- 17	1.11-1.64	4.01-25.00	0.05-0.13	0.0-2.9	0.2-4.0	.28	.28			
	14-28	32-66- 85	0-23- 50	0-11- 17	1.25-1.65	4.01-25.00	0.05-0.13	0.0-2.9	0.1-4.0	.28	.28			
	28-35	32-46- 85	0-44- 50	0-10- 17	1.25-1.65	4.01-25.00	0.09-0.21	0.0-2.9	0.1-4.0	.49	.49			
	35-50	32-50-100	0-40- 50	0-10- 17	1.56-1.65	4.01-100.00	0.08-0.18	0.0-2.9	0.1-1.0	.43	.43			
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
40E:														
Greenbelt, cemetery, very deep water table phase---------	0-6	32-46- 85	0-44- 50	0-10- 17	0.86-1.56	4.01-25.00	0.09-0.22	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	6-14	32-66- 85	0-23- 50	0-11- 17	1.11-1.64	4.01-25.00	0.05-0.13	0.0-2.9	0.2-4.0	.28	.28			
	14-28	32-66- 85	0-23- 50	0-11- 17	1.25-1.65	4.01-25.00	0.05-0.13	0.0-2.9	0.1-4.0	.28	.28			
	28-35	32-46- 85	0-44- 50	0-10- 17	1.25-1.65	4.01-25.00	0.09-0.21	0.0-2.9	0.1-4.0	.49	.49			
	35-50	32-50-100	0-40- 50	0-10- 17	1.56-1.65	4.01-100.00	0.08-0.18	0.0-2.9	0.1-1.0	.43	.43			
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
41F:														
Centralpark, very rubbly phase--------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-4.0	.32	.32			
	12-40	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			
42G:														
Centralpark, very rubbly phase--------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-4.0	.32	.32			
	12-40	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			
43F:														
Centralpark, very rubbly phase--------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-4.0	.32	.32			
	12-40	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
44G:														
Centralpark, very rubbly phase--------	0-4	0-63- 85	0-28- 80	3- 9- 10	0.86-1.64	3.00-10.00	0.06-0.13	0.0-2.9	0.8-6.0	.28	.28	5	3	86
	4-12	0-59- 85	0-30- 80	8-11- 18	1.26-1.75	4.01-10.00	0.06-0.12	0.0-2.9	0.1-4.0	.32	.32			
	12-40	0-62- 91	0-28- 80	8-10- 18	1.56-1.75	4.01-10.00	0.03-0.06	0.0-2.9	0.1-1.0	.10	.32			
45A:														
Holderton-----------	0-11	15-40- 50	50-54- 80	3- 6- 18	0.84-1.47	4.01-50.00	0.09-0.22	0.0-2.9	1.0-15	.55	.55	5	5	56
	11-22	15-35- 85	0-55- 80	3-10- 18	1.20-1.55	4.01-42.00	0.09-0.22	0.0-2.9	0.1-5.0	.55	.55			
	22-31	32-45- 85	0-45- 80	7-10- 18	1.20-1.55	4.01-42.00	0.11-0.21	0.0-2.9	0.1-5.0	.49	.49			
	31-42	32-45- 91	0-48- 80	7- 7- 18	1.47-1.70	4.01-42.00	0.11-0.20	0.0-2.9	0.1-1.0	.55	.55			
46A:														
Holderton-----------	0-11	15-40- 50	50-54- 80	3- 6- 18	0.84-1.47	4.01-50.00	0.09-0.22	0.0-2.9	1.0-15	.55	.55	5	5	56
	11-22	15-35- 85	0-55- 80	3-10- 18	1.20-1.55	4.01-42.00	0.09-0.22	0.0-2.9	0.1-5.0	.55	.55			
	22-31	32-45- 85	0-45- 80	7-10- 18	1.20-1.55	4.01-42.00	0.11-0.21	0.0-2.9	0.1-5.0	.49	.49			
	31-42	32-45- 91	0-48- 80	7- 7- 18	1.47-1.70	4.01-42.00	0.11-0.20	0.0-2.9	0.1-1.0	.55	.55			
Fluvaquentic Endoaquolls---------	0-13	0-29- 91	0-54- 80	5-17- 26	0.84-1.47	4.01-50.00	0.09-0.21	0.0-2.9	1.0-15	.32	.32	5	8	0
	13-16	0-43- 91	0-40- 80	5-17- 26	0.84-1.47	4.01-50.00	0.09-0.21	0.0-2.9	1.0-15	.28	.28			
	16-27	0-43- 91	0-40- 80	5-17- 26	0.84-1.47	4.01-50.00	0.09-0.21	0.0-2.9	1.0-15	.28	.28			
	27-34	0-64- 91	0-19- 80	5-17- 26	0.84-1.47	4.01-50.00	0.05-0.13	0.0-2.9	1.0-15	.17	.17			
47A:														
Holderton-----------	0-11	15-40- 50	50-54- 80	3- 6- 18	0.84-1.47	4.01-50.00	0.09-0.22	0.0-2.9	1.0-15	.55	.55	5	5	56
	11-22	15-35- 85	0-55- 80	3-10- 18	1.20-1.55	4.01-42.00	0.09-0.22	0.0-2.9	0.1-5.0	.55	.55			
	22-31	32-45- 85	0-45- 80	7-10- 18	1.20-1.55	4.01-42.00	0.11-0.21	0.0-2.9	0.1-5.0	.49	.49			
	31-42	32-45- 91	0-48- 80	7- 7- 18	1.47-1.70	4.01-42.00	0.11-0.20	0.0-2.9	0.1-1.0	.55	.55			
Olinville-----------	0-10	15-46- 85	0-44- 80	3-10- 18	0.84-1.47	4.01-42.00	0.09-0.22	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	10-20	15-66- 85	0-23- 80	3-11- 18	1.20-1.55	4.01-42.00	0.05-0.13	0.0-2.9	0.1-5.0	.28	.28			
	20-24	15-33- 85	0-57- 80	3-10- 18	0.99-1.47	4.01-42.00	0.09-0.22	0.0-2.9	1.0-10	.43	.43			
	24-28	15-33- 85	0-56- 80	3-11- 18	1.07-1.53	4.01-42.00	0.09-0.22	0.0-2.9	0.2-8.0	.49	.49			
	28-33	15-46- 85	0-44- 80	3-10- 18	0.99-1.47	4.01-42.00	0.09-0.22	0.0-2.9	1.0-10	.37	.37			
	33-39	15-71- 85	0-17- 80	3-12- 18	1.20-1.55	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.28	.28			
	39-42	15-68-100	0-22- 80	3-10- 18	1.33-1.55	4.01-141.00	0.06-0.14	0.0-2.9	0.1-3.0	.32	.32			
48A:														
Laguardia, very stony phase---------------	0-5	24-67- 85	0-25- 50	8- 8- 8	0.86-1.65	1.40-10.00	0.10-0.10	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	5-8	44-76- 85	0-17- 49	3- 6- 18	1.25-1.75	1.40-10.00	0.05-0.13	0.0-2.9	0.1-4.0	.20	.20			
	8-16	44-78- 91	0-16- 49	2- 6- 15	1.56-1.75	1.40-10.00	0.00-0.12	0.0-2.9	0.1-1.0	.05	.20			
	16-29	44-76- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.04-0.11	0.0-2.9	0.1-1.0	.15	.24			
	29-40	44-46- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.05-0.12	0.0-2.9	0.1-1.0	.17	.17			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
49B:														
Laguardia, very stony phase	0-5	24-67- 85	0-25- 50	8- 8- 8	0.86-1.65	1.40-10.00	0.10-0.10	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	5-8	44-76- 85	0-17- 49	3- 6- 18	1.25-1.75	1.40-10.00	0.05-0.13	0.0-2.9	0.1-4.0	.20	.20			
	8-16	44-78- 91	0-16- 49	2- 6- 15	1.56-1.75	1.40-10.00	0.00-0.12	0.0-2.9	0.1-1.0	.05	.20			
	16-29	44-76- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.04-0.11	0.0-2.9	0.1-1.0	.15	.24			
	29-40	44-46- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.05-0.12	0.0-2.9	0.1-1.0	.17	.17			
50C:														
Laguardia, very stony phase	0-5	24-67- 85	0-25- 50	8- 8- 8	0.86-1.65	1.40-10.00	0.10-0.10	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	5-8	44-76- 85	0-17- 49	3- 6- 18	1.25-1.75	1.40-10.00	0.05-0.13	0.0-2.9	0.1-4.0	.20	.20			
	8-16	44-78- 91	0-16- 49	2- 6- 15	1.56-1.75	1.40-10.00	0.00-0.12	0.0-2.9	0.1-1.0	.05	.20			
	16-29	44-76- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.04-0.11	0.0-2.9	0.1-1.0	.15	.24			
	29-40	44-46- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.05-0.12	0.0-2.9	0.1-1.0	.17	.17			
51A:														
Laguardia	0-5	24-67- 85	0-25- 50	8- 8- 8	0.86-1.65	1.40-10.00	0.10-0.10	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	5-8	44-76- 85	0-17- 49	3- 6- 18	1.25-1.75	1.40-10.00	0.05-0.13	0.0-2.9	0.1-4.0	.20	.20			
	8-16	44-78- 91	0-16- 49	2- 6- 15	1.56-1.75	1.40-10.00	0.00-0.12	0.0-2.9	0.1-1.0	.05	.20			
	16-29	44-76- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.04-0.11	0.0-2.9	0.1-1.0	.15	.24			
	29-40	44-46- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.05-0.12	0.0-2.9	0.1-1.0	.17	.17			
52B:														
Laguardia	0-5	24-67- 85	0-25- 50	8- 8- 8	0.86-1.65	1.40-10.00	0.10-0.10	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	5-8	44-76- 85	0-17- 49	3- 6- 18	1.25-1.75	1.40-10.00	0.05-0.13	0.0-2.9	0.1-4.0	.20	.20			
	8-16	44-78- 91	0-16- 49	2- 6- 15	1.56-1.75	1.40-10.00	0.00-0.12	0.0-2.9	0.1-1.0	.05	.20			
	16-29	44-76- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.04-0.11	0.0-2.9	0.1-1.0	.15	.24			
	29-40	44-46- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.05-0.12	0.0-2.9	0.1-1.0	.17	.17			
53C:														
Laguardia	0-5	24-67- 85	0-25- 50	8- 8- 8	0.86-1.65	1.40-10.00	0.10-0.10	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	5-8	44-76- 85	0-17- 49	3- 6- 18	1.25-1.75	1.40-10.00	0.05-0.13	0.0-2.9	0.1-4.0	.20	.20			
	8-16	44-78- 91	0-16- 49	2- 6- 15	1.56-1.75	1.40-10.00	0.00-0.12	0.0-2.9	0.1-1.0	.05	.20			
	16-29	44-76- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.04-0.11	0.0-2.9	0.1-1.0	.15	.24			
	29-40	44-46- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.05-0.12	0.0-2.9	0.1-1.0	.17	.17			
54D:														
Laguardia	0-5	24-67- 85	0-25- 50	8- 8- 8	0.86-1.65	1.40-10.00	0.10-0.10	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	5-8	44-76- 85	0-17- 49	3- 6- 18	1.25-1.75	1.40-10.00	0.05-0.13	0.0-2.9	0.1-4.0	.20	.20			
	8-16	44-78- 91	0-16- 49	2- 6- 15	1.56-1.75	1.40-10.00	0.00-0.12	0.0-2.9	0.1-1.0	.05	.20			
	16-29	44-76- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.04-0.11	0.0-2.9	0.1-1.0	.15	.24			
	29-40	44-46- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.05-0.12	0.0-2.9	0.1-1.0	.17	.17			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
55E:														
Laguardia------------	0-5	24-67- 85	0-25- 50	8- 8- 8	0.86-1.65	1.40-10.00	0.10-0.10	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	5-8	44-76- 85	0-17- 49	3- 6- 18	1.25-1.75	1.40-10.00	0.05-0.13	0.0-2.9	0.1-4.0	.20	.20			
	8-16	44-78- 91	0-16- 49	2- 6- 15	1.56-1.75	1.40-10.00	0.00-0.12	0.0-2.9	0.1-1.0	.05	.20			
	16-29	44-76- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.04-0.11	0.0-2.9	0.1-1.0	.15	.24			
	29-40	44-46- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.05-0.12	0.0-2.9	0.1-1.0	.17	.17			
56F:														
Laguardia------------	0-5	24-67- 85	0-25- 50	8- 8- 8	0.86-1.65	1.40-10.00	0.10-0.10	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	5-8	44-76- 85	0-17- 49	3- 6- 18	1.25-1.75	1.40-10.00	0.05-0.13	0.0-2.9	0.1-4.0	.20	.20			
	8-16	44-78- 91	0-16- 49	2- 6- 15	1.56-1.75	1.40-10.00	0.00-0.12	0.0-2.9	0.1-1.0	.05	.20			
	16-29	44-76- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.04-0.11	0.0-2.9	0.1-1.0	.15	.24			
	29-40	44-46- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.05-0.12	0.0-2.9	0.1-1.0	.17	.17			
57A:														
Laguardia------------	0-5	24-67- 85	0-25- 50	8- 8- 8	0.86-1.65	1.40-10.00	0.10-0.10	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	5-8	44-76- 85	0-17- 49	3- 6- 18	1.25-1.75	1.40-10.00	0.05-0.13	0.0-2.9	0.1-4.0	.20	.20			
	8-16	44-78- 91	0-16- 49	2- 6- 15	1.56-1.75	1.40-10.00	0.00-0.12	0.0-2.9	0.1-1.0	.05	.20			
	16-29	44-76- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.04-0.11	0.0-2.9	0.1-1.0	.15	.24			
	29-40	44-46- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.05-0.12	0.0-2.9	0.1-1.0	.17	.17			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
58B:														
Laguardia------------	0-5	24-67- 85	0-25- 50	8- 8- 8	0.86-1.65	1.40-10.00	0.10-0.10	0.0-2.9	0.8-6.0	.24	.24	5	3	86
	5-8	44-76- 85	0-17- 49	3- 6- 18	1.25-1.75	1.40-10.00	0.05-0.13	0.0-2.9	0.1-4.0	.20	.20			
	8-16	44-78- 91	0-16- 49	2- 6- 15	1.56-1.75	1.40-10.00	0.00-0.12	0.0-2.9	0.1-1.0	.05	.20			
	16-29	44-76- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.04-0.11	0.0-2.9	0.1-1.0	.15	.24			
	29-40	44-46- 91	0-17- 49	2- 6- 18	1.56-1.75	1.40-10.00	0.05-0.12	0.0-2.9	0.1-1.0	.17	.17			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
59A:														
Limerick-------------	0-2	0-45- 52	28-45- 80	0-10- 17	0.82-1.42	4.01-14.00	0.11-0.21	0.0-2.9	1.0-15	.32	.32	5	5	56
	2-6	0-45- 52	28-45- 80	0-10- 17	1.04-1.49	4.01-14.00	0.11-0.21	0.0-2.9	0.2-8.0	.43	.43			
	6-11	0-47- 85	0-47- 80	0- 6- 17	1.18-1.50	4.01-14.00	0.05-0.15	0.0-2.9	0.1-5.0	.55	.55			
	11-26	0-14- 85	0-77- 80	0- 9- 17	1.18-1.50	4.01-14.00	0.09-0.22	0.0-2.9	0.1-5.0	.64	.64			
	26-33	0-15- 85	0-68- 80	0-17- 17	1.18-1.50	4.01-14.00	0.09-0.22	0.0-2.9	0.1-5.0	.55	.55			
	33-40	0-52- 85	0-44- 80	0- 4- 17	1.18-1.50	4.01-14.00	0.05-0.15	0.0-2.9	0.1-5.0	.55	.55			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
60A:														
Natchaug-------------	0-32	-33-	-57-	-11-	0.15-0.40	42.00-141.00	0.26-0.50	0.0-2.9	30-80	---	---	2	8	0
	32-50	0-33- 85	0-57- 80	0-11- 27	1.41-1.50	4.01-25.00	0.08-0.23	0.0-2.9	0.1-1.0	.55	.55			
61A:														
Olinville------------	0-10	15-46- 85	0-44- 80	3-10- 18	0.84-1.47	4.01-42.00	0.09-0.22	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	10-20	15-66- 85	0-23- 80	3-11- 18	1.20-1.55	4.01-42.00	0.05-0.13	0.0-2.9	0.1-5.0	.28	.28			
	20-24	15-33- 85	0-57- 80	3-10- 18	0.99-1.47	4.01-42.00	0.09-0.22	0.0-2.9	1.0-10	.43	.43			
	24-28	15-33- 85	0-56- 80	3-11- 18	1.07-1.53	4.01-42.00	0.09-0.22	0.0-2.9	0.2-8.0	.49	.49			
	28-33	15-46- 85	0-44- 80	3-10- 18	0.99-1.47	4.01-42.00	0.09-0.22	0.0-2.9	1.0-10	.37	.37			
	33-39	15-71- 85	0-17- 80	3-12- 18	1.20-1.55	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.28	.28			
	39-42	15-68-100	0-22- 80	3-10- 18	1.33-1.55	4.01-141.00	0.06-0.14	0.0-2.9	0.1-3.0	.32	.32			
62A:														
Pavement & buildings, tidal marsh substratum----------	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78-100	0-16- 29	0- 5- 15	1.73-2.00	0.41-4.00	0.00-0.13	0.0-2.9	0.1-2.0	.17	.32			
63A:														
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
64B:														
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
65C:														
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
66A:														
Pavement & buildings, alluvium substratum-	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78-100	0-16- 29	0- 5- 15	1.73-2.00	0.41-4.00	0.00-0.13	0.0-2.9	0.1-2.0	.17	.32			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
67A:														
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
68B:														
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
69C:														
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
70A:														
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
71B:														
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
72C:														
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
73D:														
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
74A:														
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
Rock outcrop---------	---	--	--	--	---	---	---	---	---	---	---	--	---	---

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Kf	T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
75B:														
Pavement & buildings, till substratum-----	0-6	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---	--	2	134
	6-20	--	--	--	---	0.00-0.00	0.00-0.00	---	---	---	---			
	20-72	70-78- 91	0-16- 29	0- 5- 15	1.69-2.00	0.41-4.00	0.00-0.06	0.0-2.9	0.1-1.0	.20	.32			
Greenbelt------------	0-4	32-45- 85	0-43- 50	7-12- 27	0.84-1.65	3.00-10.00	0.10-0.21	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	4-15	32-64- 85	0-24- 50	5-12- 20	1.20-1.75	4.01-10.00	0.05-0.12	0.0-2.9	0.1-5.0	.28	.28			
	15-25	32-71- 85	0-17- 50	5-12- 20	1.20-1.75	4.01-10.00	0.04-0.14	0.0-2.9	0.1-5.0	.28	.28			
	25-42	15-70- 91	0-22- 80	5- 8- 20	1.47-1.75	4.01-10.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
Rock outcrop---------	---	--	--	--	---	---	---	---	---	---	---	--	---	---
76A:														
Pootatuck------------	0-3	32-48- 85	0-40- 50	0-12- 17	0.86-1.56	4.01-50.00	0.09-0.23	0.0-2.9	1.0-15	.24	.24	5	5	56
	3-20	44-69- 85	0-21- 49	0-10- 17	1.25-1.65	4.01-42.00	0.04-0.13	0.0-2.9	0.1-5.0	.28	.28			
	20-29	44-67- 85	0-23- 49	0-10- 17	1.25-1.65	4.01-42.00	0.04-0.13	0.0-2.9	0.1-5.0	.28	.28			
	29-52	44-68-100	0-22- 49	0-10- 17	1.56-1.65	4.01-141.00	0.04-0.13	0.0-2.9	0.1-1.0	.28	.28			
77B:														
Pootatuck------------	0-3	32-48- 85	0-40- 50	0-12- 17	0.86-1.56	4.01-50.00	0.09-0.23	0.0-2.9	1.0-15	.24	.24	5	5	56
	3-20	44-69- 85	0-21- 49	0-10- 17	1.25-1.65	4.01-42.00	0.04-0.13	0.0-2.9	0.1-5.0	.28	.28			
	20-29	44-67- 85	0-23- 49	0-10- 17	1.25-1.65	4.01-42.00	0.04-0.13	0.0-2.9	0.1-5.0	.28	.28			
	29-52	44-68-100	0-22- 49	0-10- 17	1.56-1.65	4.01-141.00	0.04-0.13	0.0-2.9	0.1-1.0	.28	.28			
78A:														
Pootatuck------------	0-3	32-48- 85	0-40- 50	0-12- 17	0.86-1.56	4.01-50.00	0.09-0.23	0.0-2.9	1.0-15	.24	.24	5	5	56
	3-20	44-69- 85	0-21- 49	0-10- 17	1.25-1.65	4.01-42.00	0.04-0.13	0.0-2.9	0.1-5.0	.28	.28			
	20-29	44-67- 85	0-23- 49	0-10- 17	1.25-1.65	4.01-42.00	0.04-0.13	0.0-2.9	0.1-5.0	.28	.28			
	29-52	44-68-100	0-22- 49	0-10- 17	1.56-1.65	4.01-141.00	0.04-0.13	0.0-2.9	0.1-1.0	.28	.28			
Fluventic Hapludolls-	0-17	0-14- 91	0-69- 80	0-17- 27	0.82-1.42	4.01-50.00	0.09-0.21	0.0-2.9	1.0-15	.32	.32	5	5	56
	17-28	0-14-100	0-69- 80	0-17- 27	1.42-1.50	4.01-50.00	0.09-0.22	0.0-2.9	0.1-1.0	.55	.55			
	28-40	0-14-100	0-69- 80	0-17- 27	1.42-1.50	4.01-50.00	0.09-0.22	0.0-2.9	0.1-1.0	.55	.55			
79A:														
Pootatuck------------	0-3	32-48- 85	0-40- 50	0-12- 17	0.86-1.56	4.01-50.00	0.09-0.23	0.0-2.9	1.0-15	.24	.24	5	5	56
	3-20	44-69- 85	0-21- 49	0-10- 17	1.25-1.65	4.01-42.00	0.04-0.13	0.0-2.9	0.1-5.0	.28	.28			
	20-29	44-67- 85	0-23- 49	0-10- 17	1.25-1.65	4.01-42.00	0.04-0.13	0.0-2.9	0.1-5.0	.28	.28			
	29-52	44-68-100	0-22- 49	0-10- 17	1.56-1.65	4.01-141.00	0.04-0.13	0.0-2.9	0.1-1.0	.28	.28			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
Olinville------------	0-10	15-46- 85	0-44- 80	3-10- 18	0.84-1.47	4.01-42.00	0.09-0.22	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	10-20	15-66- 85	0-23- 80	3-11- 18	1.20-1.55	4.01-42.00	0.05-0.13	0.0-2.9	0.1-5.0	.28	.28			
	20-24	15-33- 85	0-57- 80	3-10- 18	0.99-1.47	4.01-42.00	0.09-0.22	0.0-2.9	1.0-10	.43	.43			
	24-28	15-33- 85	0-56- 80	3-11- 18	1.07-1.53	4.01-42.00	0.09-0.22	0.0-2.9	0.2-8.0	.49	.49			
	28-33	15-46- 85	0-44- 80	3-10- 18	0.99-1.47	4.01-42.00	0.09-0.22	0.0-2.9	1.0-10	.37	.37			
	33-39	15-71- 85	0-17- 80	3-12- 18	1.20-1.55	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.28	.28			
	39-42	15-68-100	0-22- 80	3-10- 18	1.33-1.55	4.01-141.00	0.06-0.14	0.0-2.9	0.1-3.0	.32	.32			
80A:														
Pootatuck------------	0-3	32-48- 85	0-40- 50	0-12- 17	0.86-1.56	4.01-50.00	0.09-0.23	0.0-2.9	1.0-15	.24	.24	5	5	56
	3-20	44-69- 85	0-21- 49	0-10- 17	1.25-1.65	4.01-42.00	0.04-0.13	0.0-2.9	0.1-5.0	.28	.28			
	20-29	44-67- 85	0-23- 49	0-10- 17	1.25-1.65	4.01-42.00	0.04-0.13	0.0-2.9	0.1-5.0	.28	.28			
	29-52	44-68-100	0-22- 49	0-10- 17	1.56-1.65	4.01-141.00	0.04-0.13	0.0-2.9	0.1-1.0	.28	.28			
Suncook--------------	0-2	44-66- 91	0-31- 49	1- 3- 5	0.88-1.65	14.00-141.00	0.06-0.13	0.0-2.9	1.0-15	.28	.28	5	3	86
	2-5	44-80- 91	0-17- 49	1- 3- 5	0.88-1.65	42.00-141.00	0.05-0.19	0.0-2.9	1.0-15	.17	.17			
	5-14	70-81-100	0-17- 29	1- 2- 5	1.07-1.65	42.00-141.00	0.08-0.18	0.0-2.9	1.0-10	.24	.24			
	14-40	70-81-100	0-17- 29	1- 2- 5	1.65-1.75	42.00-141.00	0.05-0.15	0.0-2.9	0.1-1.0	.24	.24			
Olinville------------	0-10	15-46- 85	0-44- 80	3-10- 18	0.84-1.47	4.01-42.00	0.09-0.22	0.0-2.9	0.8-6.0	.37	.37	5	5	56
	10-20	15-66- 85	0-23- 80	3-11- 18	1.20-1.55	4.01-42.00	0.05-0.13	0.0-2.9	0.1-5.0	.28	.28			
	20-24	15-33- 85	0-57- 80	3-10- 18	0.99-1.47	4.01-42.00	0.09-0.22	0.0-2.9	1.0-10	.43	.43			
	24-28	15-33- 85	0-56- 80	3-11- 18	1.07-1.53	4.01-42.00	0.09-0.22	0.0-2.9	0.2-8.0	.49	.49			
	28-33	15-46- 85	0-44- 80	3-10- 18	0.99-1.47	4.01-42.00	0.09-0.22	0.0-2.9	1.0-10	.37	.37			
	33-39	15-71- 85	0-17- 80	3-12- 18	1.20-1.55	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.28	.28			
	39-42	15-68-100	0-22- 80	3-10- 18	1.33-1.55	4.01-141.00	0.06-0.14	0.0-2.9	0.1-3.0	.32	.32			
81A:														
Rikers---------------	0-5	44-93-100	0- 6- 49	0- 0- 10	0.88-1.74	42.00-141.00	0.00-0.12	0.0-2.9	0.8-6.0	.05	.05	5	1	220
	5-60	70-93-100	0- 7- 29	0- 0- 10	1.65-1.85	42.00-141.00	0.00-0.09	0.0-2.9	0.1-1.0	.10	.10			
82F:														
Rikers---------------	0-5	44-93-100	0- 6- 49	0- 0- 10	0.88-1.74	42.00-141.00	0.00-0.12	0.0-2.9	0.8-6.0	.05	.05	1	1	220
	5-60	70-93-100	0- 7- 29	0- 0- 10	1.65-1.85	42.00-141.00	0.00-0.09	0.0-2.9	0.1-1.0	.10	.10			
83G:														
Rock outcrop---------	---	--	--	--	---	---	---	---	---	---	---	--	---	---
Hollis---------------	0-2	24-50- 85	0-40- 50	0-10- 17	0.86-1.55	4.01-50.00	0.08-0.23	0.0-2.9	2.0-15	.37	.37	1	5	56
	2-6	44-66- 85	0-24- 49	0-10- 17	0.86-1.55	4.01-50.00	0.05-0.14	0.0-2.9	2.0-15	.32	.32			
	6-16	24-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.08-0.13	0.0-2.9	0.1-5.0	.20	.37			
	16-26	--	--	--	---	0.00-0.01	---	---	---	---	---			
Chatfield------------	0-7	32-44- 85	0-40- 50	0-16- 17	0.86-1.55	4.01-50.00	0.11-0.17	0.0-2.9	1.0-15	.24	.24	2	5	56
	7-25	32-60- 85	0-24- 50	0-16- 17	1.25-1.65	4.01-42.00	0.06-0.14	0.0-2.9	0.1-5.0	.37	.37			
	25-35	--	--	--	---	0.00-0.01	---	---	---	---	---			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Kf	T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
84A:														
Suncook----------------	0-2	44-66- 91	0-31- 49	1- 3- 5	0.88-1.65	14.00-141.00	0.06-0.13	0.0-2.9	1.0-15	.28	.28	5	3	86
	2-5	44-80- 91	0-17- 49	1- 3- 5	0.88-1.65	42.00-141.00	0.05-0.19	0.0-2.9	1.0-15	.17	.17			
	5-14	70-81-100	0-17- 29	1- 2- 5	1.07-1.65	42.00-141.00	0.08-0.18	0.0-2.9	1.0-10	.24	.24			
	14-40	70-81-100	0-17- 29	1- 2- 5	1.65-1.75	42.00-141.00	0.05-0.15	0.0-2.9	0.1-1.0	.24	.24			
85A:														
Suncook----------------	0-2	44-66- 91	0-31- 49	1- 3- 5	0.88-1.65	14.00-141.00	0.06-0.13	0.0-2.9	1.0-15	.28	.28	5	3	86
	2-5	44-80- 91	0-17- 49	1- 3- 5	0.88-1.65	42.00-141.00	0.05-0.19	0.0-2.9	1.0-15	.17	.17			
	5-14	70-81-100	0-17- 29	1- 2- 5	1.07-1.65	42.00-141.00	0.08-0.18	0.0-2.9	1.0-10	.24	.24			
	14-40	70-81-100	0-17- 29	1- 2- 5	1.65-1.75	42.00-141.00	0.05-0.15	0.0-2.9	0.1-1.0	.24	.24			
86A:														
Tonawanda--------------	0-3	0-21- 50	50-69- 80	0-10- 17	0.82-1.41	4.01-14.00	0.08-0.24	0.0-2.9	1.0-15	.43	.43	5	5	56
	3-15	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	4.01-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	15-20	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	4.01-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	20-28	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	3.00-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	28-39	44-61- 85	0-33- 49	0- 6- 17	1.35-1.50	3.00-14.00	0.05-0.17	0.0-2.9	0.1-3.0	.64	.64			
	39-50	0-65- 85	0-29- 80	0- 6- 40	1.42-1.50	4.01-14.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
87B:														
Tonawanda--------------	0-3	0-21- 50	50-69- 80	0-10- 17	0.82-1.41	4.01-14.00	0.08-0.24	0.0-2.9	1.0-15	.43	.43	5	5	56
	3-15	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	4.01-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	15-20	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	4.01-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	20-28	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	3.00-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	28-39	44-61- 85	0-33- 49	0- 6- 17	1.35-1.50	3.00-14.00	0.05-0.17	0.0-2.9	0.1-3.0	.64	.64			
	39-50	0-65- 85	0-29- 80	0- 6- 40	1.42-1.50	4.01-14.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
88A:														
Tonawanda, recreational parkland phase------	0-3	0-21- 50	50-69- 80	0-10- 17	0.82-1.41	4.01-14.00	0.08-0.24	0.0-2.9	1.0-15	.43	.43	5	5	56
	3-15	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	4.01-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	15-20	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	4.01-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	20-28	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	3.00-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	28-39	44-61- 85	0-33- 49	0- 6- 17	1.35-1.50	3.00-14.00	0.05-0.17	0.0-2.9	0.1-3.0	.64	.64			
	39-50	0-65- 85	0-29- 80	0- 6- 40	1.42-1.50	4.01-14.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			
89B:														
Tonawanda, recreational parkland phase------	0-3	0-21- 50	50-69- 80	0-10- 17	0.82-1.41	4.01-14.00	0.08-0.24	0.0-2.9	1.0-15	.43	.43	5	5	56
	3-15	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	4.01-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	15-20	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	4.01-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	20-28	0-14- 50	50-74- 80	0-12- 17	1.17-1.50	3.00-14.00	0.08-0.24	0.0-2.9	0.1-5.0	.55	.55			
	28-39	44-61- 85	0-33- 49	0- 6- 17	1.35-1.50	3.00-14.00	0.05-0.17	0.0-2.9	0.1-3.0	.64	.64			
	39-50	0-65- 85	0-29- 80	0- 6- 40	1.42-1.50	4.01-14.00	0.05-0.14	0.0-2.9	0.1-1.0	.37	.37			

Table 6.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
w:														
Water----------------	---	--	--	--	---	---	---	---	---	---	---	--	---	---

Table 7.--Chemical Properties

Table 7 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. Effective cation-exchange capacity is reported for soil horizons with a representative pH value of less than 5.5. Because pH is often dynamic throughout a soil profile, the tabulated soils may have values for both cation-exchange capacity and effective cation-exchange capacity.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Table 7.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
1A:					
Canandaigua----------	0-7	---	0.9-8.4	5.0-7.8	0
	7-17	---	1.0-17	5.0-7.8	0
	17-32	---	1.1-17	5.0-7.8	0
	32-45	---	1.2-17	5.0-8.4	0
Tonawanda------------	0-3	---	0.0-4.9	4.5-6.5	0
	3-15	---	0.0-6.4	4.5-6.5	0
	15-20	---	0.0-6.4	4.5-6.5	0
	20-28	---	0.0-6.4	4.5-6.5	0
	28-39	---	0.0-6.4	4.5-6.5	0
	39-50	---	0.0-17	4.5-6.5	0
2A:					
Centralpark----------	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
3B:					
Centralpark----------	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
4F:					
Centralpark----------	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
5D:					
Centralpark----------	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
6A:					
Centralpark----------	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
Rock Outcrop---------	0-72	---	---	---	---
7B:					
Centralpark----------	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
Rock Outcrop	---	---	---	---	---
8C:					
Centralpark	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
Greenbelt	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
Rock Outcrop	---	---	---	---	---
9D:					
Centralpark	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
Greenbelt	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
Rock Outcrop	---	---	---	---	---
10D:					
Charlton	0-6	---	1.3-8.4	4.5-6.0	0
	6-7	---	1.0-7.2	4.5-6.0	0
	7-19	---	1.0-7.7	4.5-6.0	0
	19-37	---	1.0-7.7	4.5-6.0	0
	37-45	---	1.6-11	4.5-6.0	0
11C:					
Charlton	0-6	---	1.3-8.4	4.5-6.0	0
	6-7	---	1.0-7.2	4.5-6.0	0
	7-19	---	1.0-7.7	4.5-6.0	0
	19-37	---	1.0-7.7	4.5-6.0	0
	37-45	---	1.6-11	4.5-6.0	0
Chatfield	0-7	---	5.7-11	4.5-6.0	0
	7-25	---	4.9-10	4.5-6.0	0
	25-35	---	---	---	---
12C:					
Charlton	0-6	---	1.3-8.4	4.5-6.0	0
	6-7	---	1.0-7.2	4.5-6.0	0
	7-19	---	1.0-7.7	4.5-6.0	0
	19-37	---	1.0-7.7	4.5-6.0	0
	37-45	---	1.6-11	4.5-6.0	0
Chatfield	0-7	---	5.7-11	4.5-6.0	0
	7-25	---	4.9-10	4.5-6.0	0
	25-35	---	---	---	---
Rock Outcrop	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
13C:					
Chatfield, recreational parkland phase------	0-4	6.4-16	---	5.1-7.3	0
	4-22	0.0-15	---	5.1-7.3	0
	22-32	---	---	---	---
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
Hollis, recreational parkland phase------	0-7	---	0.0-5.3	5.1-7.3	0
	7-11	---	0.0-6.9	5.1-7.3	0
	11-18	---	0.0-6.9	5.1-7.3	0
	18-28	---	---	---	---
14D:					
Chatfield------------	0-7	---	5.7-11	4.5-6.0	0
	7-25	---	4.9-10	4.5-6.0	0
	25-35	---	---	---	---
Charlton-------------	0-6	---	1.3-8.4	4.5-6.0	0
	6-7	---	1.0-7.2	4.5-6.0	0
	7-19	---	1.0-7.7	4.5-6.0	0
	19-37	---	1.0-7.7	4.5-6.0	0
	37-45	---	1.6-11	4.5-6.0	0
15E:					
Chatfield------------	0-7	---	5.7-11	4.5-6.0	0
	7-25	---	4.9-10	4.5-6.0	0
	25-35	---	---	---	---
Charlton-------------	0-6	---	1.3-8.4	4.5-6.0	0
	6-7	---	1.0-7.2	4.5-6.0	0
	7-19	---	1.0-7.7	4.5-6.0	0
	19-37	---	1.0-7.7	4.5-6.0	0
	37-45	---	1.6-11	4.5-6.0	0
16B:					
Charlton-------------	0-6	---	1.3-8.4	4.5-6.0	0
	6-7	---	1.0-7.2	4.5-6.0	0
	7-19	---	1.0-7.7	4.5-6.0	0
	19-37	---	1.0-7.7	4.5-6.0	0
	37-45	---	1.6-11	4.5-6.0	0
Chatfield------------	0-7	---	5.7-11	4.5-6.0	0
	7-25	---	4.9-10	4.5-6.0	0
	25-35	---	---	---	---
Hollis---------------	0-2	---	0.1-5.2	4.5-6.0	0
	2-6	---	0.1-5.2	4.5-6.0	0
	6-16	---	2.0-6.7	4.5-6.0	0
	16-20	---	---	---	---
17B:					
Chatfield------------	0-7	---	5.7-11	4.5-6.0	0
	7-25	---	4.9-10	4.5-6.0	0
	25-35	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
Hollis	0-2	---	0.1-5.2	4.5-6.0	0
	2-6	---	0.1-5.2	4.5-6.0	0
	6-16	---	2.0-6.7	4.5-6.0	0
	16-20	---	---	---	---
Rock Outcrop	---	---	---	---	---
Charlton	0-6	---	1.3-8.4	4.5-6.0	0
	6-7	---	1.0-7.2	4.5-6.0	0
	7-19	---	1.0-7.7	4.5-6.0	0
	19-37	---	1.0-7.7	4.5-6.0	0
	37-45	---	1.6-11	4.5-6.0	0
18C:					
Chatfield, recreational parkland phase	0-4	6.4-16	---	5.1-7.3	0
	4-22	0.0-15	---	5.1-7.3	0
	22-32	---	---	---	---
Greenbelt	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
Rock Outcrop	---	---	---	---	---
19B:					
Chatfield, recreational parkland phase	0-4	6.4-16	---	5.1-7.3	0
	4-22	0.0-15	---	5.1-7.3	0
	22-32	---	---	---	---
Hollis, recreational parkland phase	0-7	---	0.0-5.3	5.1-7.3	0
	7-11	---	0.0-6.9	5.1-7.3	0
	11-18	---	0.0-6.9	5.1-7.3	0
	18-28	---	---	---	---
Greenbelt	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
20B:					
Chatfield, recreational parkland phase	0-4	6.4-16	---	5.1-7.3	0
	4-22	0.0-15	---	5.1-7.3	0
	22-32	---	---	---	---
Hollis, recreational parkland phase	0-7	---	0.0-5.3	5.1-7.3	0
	7-11	---	0.0-6.9	5.1-7.3	0
	11-18	---	0.0-6.9	5.1-7.3	0
	18-28	---	---	---	---
Rock Outcrop	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
21D:					
Chatfield------------	0-7	---	5.7-11	4.5-6.0	0
	7-25	---	4.9-10	4.5-6.0	0
	25-35	---	---	---	---
Hollis---------------	0-2	---	0.1-5.2	4.5-6.0	0
	2-6	---	0.1-5.2	4.5-6.0	0
	6-16	---	2.0-6.7	4.5-6.0	0
	16-20	---	---	---	---
Rock Outcrop---------	---	---	---	---	---
22F:					
Chatfield------------	0-7	---	5.7-11	4.5-6.0	0
	7-25	---	4.9-10	4.5-6.0	0
	25-35	---	---	---	---
Hollis---------------	0-2	---	0.1-5.2	4.5-6.0	0
	2-6	---	0.1-5.2	4.5-6.0	0
	6-16	---	2.0-6.7	4.5-6.0	0
	16-20	---	---	---	---
Rock Outcrop---------	---	---	---	---	---
23A:					
Fluvaquentic Endoaquolls---------	0-13	5.4-27	---	6.1-8.4	0
	13-16	5.4-27	---	6.1-8.4	0
	16-27	5.4-27	---	6.1-8.4	0
	27-34	5.4-27	---	6.1-8.4	0
24A:					
Fluventic Hapludolls-	0-17	5.4-27	---	5.6-8.4	0
	17-28	4.1-20	---	5.6-8.4	0
	28-40	3.8-18	---	5.6-8.4	0
25A:					
Fluventic Hapludolls-	0-17	5.4-27	---	5.6-8.4	0
	17-28	4.1-20	---	5.6-8.4	0
	28-40	3.8-18	---	5.6-8.4	0
26A:					
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
27B:					
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
28C:					
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
29D:					
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
30E:					
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
31F:					
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
32A:					
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
Centralpark----------	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
33B:					
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
Centralpark----------	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
34F:					
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
Laguardia------------	0-5	4.2-4.5	---	6.1-9.0	0-18
	5-8	1.6-9.9	---	6.1-9.0	0-30
	8-16	1.1-8.1	---	6.1-9.0	0-30
	16-29	1.1-9.7	---	6.1-9.0	0-30
	29-40	1.1-9.7	---	6.1-9.0	0-30
35A:					
Greenbelt, cemetery, deep water table phase---------------	0-7	1.6-10	---	4.5-7.8	0
	7-24	---	0.6-6.9	4.5-7.8	0
	24-32	---	0.6-6.9	4.5-7.8	0
	32-36	---	0.2-3.5	4.5-7.8	0
	36-60	---	0.7-6.9	4.5-7.8	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
Pavement & Buildings, till substratum-----	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
36A:					
Greenbelt, cemetery, very deep water table phase---------	0-6	1.6-10	---	4.5-7.8	0
	6-14	1.6-10.0	---	4.5-7.8	0
	14-28	---	0.6-6.9	4.5-7.8	0
	28-35	---	0.6-6.9	4.5-7.8	0
	35-50	---	0.7-6.9	4.5-7.8	0
Pavement & Buildings, till substratum-----	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
37B:					
Greenbelt, cemetery, very deep water table phase---------	0-6	1.6-10	---	4.5-7.8	0
	6-14	1.6-10.0	---	4.5-7.8	0
	14-28	---	0.6-6.9	4.5-7.8	0
	28-35	---	0.6-6.9	4.5-7.8	0
	35-50	---	0.7-6.9	4.5-7.8	0
Pavement & Buildings, till substratum-----	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
38C:					
Greenbelt, cemetery, very deep water table phase---------	0-6	1.6-10	---	4.5-7.8	0
	6-14	1.6-10.0	---	4.5-7.8	0
	14-28	---	0.6-6.9	4.5-7.8	0
	28-35	---	0.6-6.9	4.5-7.8	0
	35-50	---	0.7-6.9	4.5-7.8	0
Pavement & Buildings, till substratum-----	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
39D:					
Greenbelt, cemetery, very deep water table phase---------	0-6	1.6-10	---	4.5-7.8	0
	6-14	1.6-10.0	---	4.5-7.8	0
	14-28	---	0.6-6.9	4.5-7.8	0
	28-35	---	0.6-6.9	4.5-7.8	0
	35-50	---	0.7-6.9	4.5-7.8	0
Pavement & Buildings, till substratum-----	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
40E:					
Greenbelt, cemetery, very deep water table phase---------	0-6	1.6-10	---	4.5-7.8	0
	6-14	1.6-10.0	---	4.5-7.8	0
	14-28	---	0.6-6.9	4.5-7.8	0
	28-35	---	0.6-6.9	4.5-7.8	0
	35-50	---	0.7-6.9	4.5-7.8	0
Pavement & Buildings, till substratum-----	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
41F:					
Centralpark, very rubbly phase--------	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
42G:					
Centralpark, very rubbly phase--------	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
43F:					
Centralpark, very rubbly phase--------	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
44G:					
Centralpark, very rubbly phase--------	0-4	1.6-5.6	---	4.5-7.8	0
	4-12	---	1.7-6.9	4.5-7.8	0
	11-40	---	2.1-6.9	4.5-7.8	0
45A:					
Holderton------------	0-11	1.6-10	---	5.1-6.5	0
	11-22	1.6-9.9	---	5.1-6.5	0
	22-31	3.7-9.9	---	5.1-6.5	0
	31-42	3.7-9.7	---	5.1-6.5	0
46A:					
Holderton------------	0-11	1.6-10	---	5.1-6.5	0
	11-22	1.6-9.9	---	5.1-6.5	0
	22-31	3.7-9.9	---	5.1-6.5	0
	31-42	3.7-9.7	---	5.1-6.5	0
Fluvaquentic Endoaquolls---------	0-13	5.4-27	---	6.1-8.4	0
	13-16	5.4-27	---	6.1-8.4	0
	16-27	5.4-27	---	6.1-8.4	0
	27-34	5.4-27	---	6.1-8.4	0
47A:					
Holderton------------	0-11	1.6-10	---	5.1-6.5	0
	11-22	1.6-9.9	---	5.1-6.5	0
	22-31	3.7-9.9	---	5.1-6.5	0
	31-42	3.7-9.7	---	5.1-6.5	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
Olinville	0-10	2.8-17	---	5.1-7.0	0
	10-20	2.1-15	---	5.1-7.0	0
	20-24	2.8-16	---	5.1-7.0	0
	24-28	2.3-15	---	5.1-7.0	0
	28-33	2.8-16	---	5.1-7.0	0
	33-39	2.1-15	---	5.1-7.0	0
	39-42	2.1-14	---	5.1-7.0	0
48A:					
Laguardia, very stony phase	0-5	4.2-4.5	---	6.1-9.0	0-18
	5-8	1.6-9.9	---	6.1-9.0	0-30
	8-16	1.1-8.1	---	6.1-9.0	0-30
	16-29	1.1-9.7	---	6.1-9.0	0-30
	29-40	1.1-9.7	---	6.1-9.0	0-30
49B:					
Laguardia, very stony phase	0-5	4.2-4.5	---	6.1-9.0	0-18
	5-8	1.6-9.9	---	6.1-9.0	0-30
	8-16	1.1-8.1	---	6.1-9.0	0-30
	16-29	1.1-9.7	---	6.1-9.0	0-30
	29-40	1.1-9.7	---	6.1-9.0	0-30
50C:					
Laguardia, very stony phase	0-5	4.2-4.5	---	6.1-9.0	0-18
	5-8	1.6-9.9	---	6.1-9.0	0-30
	8-16	1.1-8.1	---	6.1-9.0	0-30
	16-29	1.1-9.7	---	6.1-9.0	0-30
	29-40	1.1-9.7	---	6.1-9.0	0-30
51A:					
Laguardia	0-5	4.2-4.5	---	6.1-9.0	0-18
	5-8	1.6-9.9	---	6.1-9.0	0-30
	8-16	1.1-8.1	---	6.1-9.0	0-30
	16-29	1.1-9.7	---	6.1-9.0	0-30
	29-40	1.1-9.7	---	6.1-9.0	0-30
52B:					
Laguardia	0-5	4.2-4.5	---	6.1-9.0	0-18
	5-8	1.6-9.9	---	6.1-9.0	0-30
	8-16	1.1-8.1	---	6.1-9.0	0-30
	16-29	1.1-9.7	---	6.1-9.0	0-30
	29-40	1.1-9.7	---	6.1-9.0	0-30
53C:					
Laguardia	0-5	4.2-4.5	---	6.1-9.0	0-18
	5-8	1.6-9.9	---	6.1-9.0	0-30
	8-16	1.1-8.1	---	6.1-9.0	0-30
	16-29	1.1-9.7	---	6.1-9.0	0-30
	29-40	1.1-9.7	---	6.1-9.0	0-30
54D:					
Laguardia	0-5	4.2-4.5	---	6.1-9.0	0-18
	5-8	1.6-9.9	---	6.1-9.0	0-30
	8-16	1.1-8.1	---	6.1-9.0	0-30
	16-29	1.1-9.7	---	6.1-9.0	0-30
	29-40	1.1-9.7	---	6.1-9.0	0-30

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
55E:					
Laguardia	0-5	4.2-4.5	---	6.1-9.0	0-18
	5-8	1.6-9.9	---	6.1-9.0	0-30
	8-16	1.1-8.1	---	6.1-9.0	0-30
	16-29	1.1-9.7	---	6.1-9.0	0-30
	29-40	1.1-9.7	---	6.1-9.0	0-30
56F:					
Laguardia	0-5	4.2-4.5	---	6.1-9.0	0-18
	5-8	1.6-9.9	---	6.1-9.0	0-30
	8-16	1.1-8.1	---	6.1-9.0	0-30
	16-29	1.1-9.7	---	6.1-9.0	0-30
	29-40	1.1-9.7	---	6.1-9.0	0-30
57A:					
Laguardia	0-5	4.2-4.5	---	6.1-9.0	0-18
	5-8	1.6-9.9	---	6.1-9.0	0-30
	8-16	1.1-8.1	---	6.1-9.0	0-30
	16-29	1.1-9.7	---	6.1-9.0	0-30
	29-40	1.1-9.7	---	6.1-9.0	0-30
Greenbelt	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
58B:					
Laguardia	0-5	4.2-4.5	---	6.1-9.0	0-18
	5-8	1.6-9.9	---	6.1-9.0	0-30
	8-16	1.1-8.1	---	6.1-9.0	0-30
	16-29	1.1-9.7	---	6.1-9.0	0-30
	29-40	1.1-9.7	---	6.1-9.0	0-30
Greenbelt	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
59A:					
Limerick	0-2	3.8-10	---	5.1-7.3	0
	2-6	3.7-10.0	---	5.1-7.3	0
	6-11	---	0.6-6.9	5.1-7.3	0
	11-26	---	0.6-6.9	5.1-7.3	0
	26-33	---	0.6-6.9	5.1-7.3	0
	33-40	---	0.6-6.9	5.1-7.3	0
60A:					
Natchaug	0-32	---	---	5.1-7.3	0
	32-50	0.0-13	---	5.1-7.3	0
61A:					
Olinville	0-10	2.8-17	---	5.1-7.0	0
	10-20	2.1-15	---	5.1-7.0	0
	20-24	2.8-16	---	5.1-7.0	0
	24-28	2.3-15	---	5.1-7.0	0
	28-33	2.8-16	---	5.1-7.0	0
	33-39	2.1-15	---	5.1-7.0	0
	39-42	2.1-14	---	5.1-7.0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
62A:					
Pavement & Buildings, tidal marsh substratum----------	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
63A:					
Pavement & Buildings, till substratum-----	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
64B:					
Pavement & Buildings, till substratum-----	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
65C:					
Pavement & Buildings, till substratum-----	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
66A:					
Pavement & Buildings, alluvium substratum-	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
67A:					
Pavement & Buildings, till substratum-----	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
68B:					
Pavement & Buildings, till substratum-----	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
69C:					
Pavement & Buildings, till substratum-----	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
Greenbelt	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
70A:					
Pavement & Buildings, till substratum	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
Greenbelt	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
71B:					
Pavement & Buildings, till substratum	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
Greenbelt	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
72C:					
Pavement & Buildings, till substratum	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
Greenbelt	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
73D:					
Pavement & Buildings, till substratum	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
Greenbelt	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
74A:					
Pavement & Buildings, till substratum	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
Greenbelt	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
Rock Outcrop	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
75B:					
Pavement & Buildings, till substratum-----	0-6	---	---	---	---
	6-20	---	---	---	---
	20-72	---	---	7.6-8.6	---
Greenbelt------------	0-4	3.8-15	---	5.1-7.8	0
	4-15	2.6-11	---	5.1-7.8	0
	15-25	2.6-11	---	5.1-7.8	0
	25-42	2.6-11	---	5.1-7.8	0
Rock Outcrop---------	---	---	---	---	---
76A:					
Pootatuck------------	0-3	0.6-5.6	---	4.5-6.5	0
	3-20	---	0.2-3.5	4.5-6.5	0
	20-29	---	0.2-3.5	4.5-6.5	0
	29-52	---	0.2-3.5	4.5-6.5	0
77B:					
Pootatuck------------	0-3	0.6-5.6	---	4.5-6.5	0
	3-20	---	0.2-3.5	4.5-6.5	0
	20-29	---	0.2-3.5	4.5-6.5	0
	29-52	---	0.2-3.5	4.5-6.5	0
78A:					
Pootatuck------------	0-3	0.6-5.6	---	4.5-6.5	0
	3-20	---	0.2-3.5	4.5-6.5	0
	20-29	---	0.2-3.5	4.5-6.5	0
	29-52	---	0.2-3.5	4.5-6.5	0
Fluventic Hapludolls-	0-17	5.4-27	---	5.6-8.4	0
	17-28	4.1-20	---	5.6-8.4	0
	28-40	3.8-18	---	5.6-8.4	0
79A:					
Pootatuck------------	0-3	0.6-5.6	---	4.5-6.5	0
	3-20	---	0.2-3.5	4.5-6.5	0
	20-29	---	0.2-3.5	4.5-6.5	0
	29-52	---	0.2-3.5	4.5-6.5	0
Olinville------------	0-10	2.8-17	---	5.1-7.0	0
	10-20	2.1-15	---	5.1-7.0	0
	20-24	2.8-16	---	5.1-7.0	0
	24-28	2.3-15	---	5.1-7.0	0
	28-33	2.8-16	---	5.1-7.0	0
	33-39	2.1-15	---	5.1-7.0	0
	39-42	2.1-14	---	5.1-7.0	0
80A:					
Pootatuck------------	0-3	0.6-5.6	---	4.5-6.5	0
	3-20	---	0.2-3.5	4.5-6.5	0
	20-29	---	0.2-3.5	4.5-6.5	0
	29-52	---	0.2-3.5	4.5-6.5	0
Suncook--------------	0-2	---	0.6-6.1	4.5-6.5	0
	2-5	---	0.6-6.1	4.5-6.5	0
	5-14	---	0.6-5.2	4.5-6.5	0
	14-40	---	0.2-2.1	4.5-6.5	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
Olinville------------	0-10	2.8-17	---	5.1-7.0	0
	10-20	2.1-15	---	5.1-7.0	0
	20-24	2.8-16	---	5.1-7.0	0
	24-28	2.3-15	---	5.1-7.0	0
	28-33	2.8-16	---	5.1-7.0	0
	33-39	2.1-15	---	5.1-7.0	0
	39-42	2.1-14	---	5.1-7.0	0
81A:					
Rikers---------------	0-5	0.0-9.6	---	5.1-8.4	0
	5-60	0.0-7.8	---	5.1-8.4	0
82F:					
Rikers---------------	0-5	0.0-9.6	---	5.1-8.4	0
	5-60	0.0-7.8	---	5.1-8.4	0
83G:					
Rock Outcrop---------	---	---	---	---	---
Hollis---------------	0-2	---	0.1-5.2	4.5-6.0	0
	2-6	---	0.1-5.2	4.5-6.0	0
	6-16	---	2.0-6.7	4.5-6.0	0
	16-20	---	---	---	---
Chatfield------------	0-7	---	5.7-11	4.5-6.0	0
	7-25	---	4.9-10	4.5-6.0	0
	25-35	---	---	---	---
84A:					
Suncook--------------	0-2	---	0.6-6.1	4.5-6.5	0
	2-5	---	0.6-6.1	4.5-6.5	0
	5-14	---	0.6-5.2	4.5-6.5	0
	14-40	---	0.2-2.1	4.5-6.5	0
85A:					
Suncook--------------	0-2	---	0.6-6.1	4.5-6.5	0
	2-5	---	0.6-6.1	4.5-6.5	0
	5-14	---	0.6-5.2	4.5-6.5	0
	14-40	---	0.2-2.1	4.5-6.5	0
86A:					
Tonawanda------------	0-3	---	0.0-4.9	4.5-6.5	0
	3-15	---	0.0-6.4	4.5-6.5	0
	15-20	---	0.0-6.4	4.5-6.5	0
	20-28	---	0.0-6.4	4.5-6.5	0
	28-39	---	0.0-6.4	4.5-6.5	0
	39-50	---	0.0-17	4.5-6.5	0
87B:					
Tonawanda------------	0-3	---	0.0-4.9	4.5-6.5	0
	3-15	---	0.0-6.4	4.5-6.5	0
	15-20	---	0.0-6.4	4.5-6.5	0
	20-28	---	0.0-6.4	4.5-6.5	0
	28-39	---	0.0-6.4	4.5-6.5	0
	39-50	---	0.0-17	4.5-6.5	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
88A:					
Tonawanda, recreational parkland phase------	0-3	0.0-9.5	---	5.1-7.8	0
	3-15	0.0-9.4	---	5.1-7.8	0
	15-20	0.0-9.4	---	5.1-7.8	0
	20-28	0.0-9.4	---	5.1-7.8	0
	28-39	0.0-9.3	---	5.1-7.8	0
	39-50	0.0-21	---	5.1-7.8	0
89B:					
Tonawanda, recreational parkland phase------	0-3	0.0-9.5	---	5.1-7.8	0
	3-15	0.0-9.4	---	5.1-7.8	0
	15-20	0.0-9.4	---	5.1-7.8	0
	20-28	0.0-9.4	---	5.1-7.8	0
	28-39	0.0-9.3	---	5.1-7.8	0
	39-50	0.0-21	---	5.1-7.8	0
W:					
Water----------------	---	---	---	---	---

Table 8.--Soil Features

Table 8 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Table 8.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
1A:						
Canandaigua	---	---	---	---	Moderate	Moderate
Tonawanda	---	---	---	---	High	High
2A:						
Centralpark	---	---	---	---	Moderate	High
3B:						
Centralpark	---	---	---	---	Moderate	High
4F:						
Centralpark	---	---	---	---	Moderate	High
5D:						
Centralpark	---	---	---	---	Moderate	High
Greenbelt	---	---	---	---	Low	Moderate
6A:						
Centralpark	---	---	---	---	Moderate	High
Greenbelt	---	---	---	---	Low	Moderate
Rock outcrop	Lithic bedrock	0-0	>10	Indurated	---	---
7B:						
Centralpark	---	---	---	---	Moderate	High
Greenbelt	---	---	---	---	Low	Moderate
Rock outcrop	Lithic bedrock	0-0	>10	Indurated	---	---
8C:						
Centralpark	---	---	---	---	Moderate	High
Greenbelt	---	---	---	---	Low	Moderate
Rock outcrop	Lithic bedrock	0-0	>10	Indurated	---	---
9D:						
Centralpark	---	---	---	---	Moderate	High
Greenbelt	---	---	---	---	Low	Moderate
Rock outcrop	Lithic bedrock	0-0	>10	Indurated	---	---
10D:						
Charlton	---	---	---	---	Low	High
11C:						
Charlton	---	---	---	---	Low	High
Chatfield	Lithic bedrock	20-40	>10	Indurated	Low	High

Table 8.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
12C:						
Charlton	---	---	---	---	Low	High
Chatfield	Lithic bedrock	20-40	>10	Indurated	Low	High
Rock outcrop	Lithic bedrock	0-0	>10	Indurated	---	---
13C:						
Chatfield, recreational parkland phase	Lithic bedrock	20-39	>10	Indurated	Low	High
Greenbelt	---	---	---	---	Low	Moderate
Hollis, recreational parkland phase	Lithic bedrock	10-20	>10	Indurated	Moderate	High
14D:						
Chatfield	Lithic bedrock	20-40	>10	Indurated	Low	High
Charlton	---	---	---	---	Low	High
15E:						
Chatfield	Lithic bedrock	20-40	>10	Indurated	Low	High
Charlton	---	---	---	---	Low	High
16B:						
Charlton	---	---	---	---	Low	High
Chatfield	Lithic bedrock	20-40	>10	Indurated	Low	High
Hollis	Lithic bedrock	10-20	>10	Indurated	Moderate	High
17B:						
Chatfield	Lithic bedrock	20-40	>10	Indurated	Low	High
Hollis	Lithic bedrock	10-20	>10	Indurated	Moderate	High
Rock outcrop	Lithic bedrock	0-0	>10	Indurated	---	---
Charlton	---	---	---	---	Low	High
18C:						
Chatfield, recreational parkland phase	Lithic bedrock	20-39	>10	Indurated	Low	High
Greenbelt	---	---	---	---	Low	Moderate
Rock outcrop	Lithic bedrock	0-0	>10	Indurated	---	---
19B:						
Chatfield, recreational parkland phase	Lithic bedrock	20-39	>10	Indurated	Low	High
Hollis, recreational parkland phase	Lithic bedrock	10-19	>10	Indurated	Moderate	High
Greenbelt	---	---	---	---	Low	Moderate

Table 8.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
20B:						
Chatfield, recreational parkland phase	Lithic bedrock	20-39	>10	Indurated	Low	High
Hollis, recreational parkland phase	Lithic bedrock	10-19	>10	Indurated	Moderate	High
Rock outcrop	Lithic bedrock	0-0	>10	Indurated	---	---
21D:						
Chatfield	Lithic bedrock	20-40	>10	Indurated	Low	High
Hollis	Lithic bedrock	10-20	>10	Indurated	Moderate	High
Rock outcrop	Lithic bedrock	0-0	>10	Indurated	---	---
22F:						
Chatfield	Lithic bedrock	20-40	>10	Indurated	Low	High
Hollis	Lithic bedrock	10-20	>10	Indurated	Moderate	High
Rock outcrop	Lithic bedrock	0-0	>10	Indurated	---	---
23A:						
Fluvaquentic Endoaquolls	---	---	---	---	Moderate	Low
24A:						
Fluventic Hapludolls	---	---	---	---	High	Low
25A:						
Fluventic Hapludolls	---	---	---	---	High	Low
26A:						
Greenbelt	---	---	---	---	Low	Moderate
27B:						
Greenbelt	---	---	---	---	Low	Moderate
28C:						
Greenbelt	---	---	---	---	Low	Moderate
29D:						
Greenbelt	---	---	---	---	Low	Moderate
30E:						
Greenbelt	---	---	---	---	Low	Moderate
31F:						
Greenbelt	---	---	---	---	Low	Moderate
32A:						
Greenbelt	---	---	---	---	Low	Moderate
Centralpark	---	---	---	---	Moderate	High
33B:						
Greenbelt	---	---	---	---	Low	Moderate
Centralpark	---	---	---	---	Moderate	High

Table 8.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
34F:						
Greenbelt	---	---	---	---	Low	Moderate
Laguardia	---	---	---	---	Moderate	Low
35A:						
Greenbelt, cemetery, deep water table phase	---	---	---	---	Moderate	Moderate
Pavement & buildings, till substratum	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
36A:						
Greenbelt, cemetery, very deep water table phase	---	---	---	---	Low	Moderate
Pavement & buildings, till substratum	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
37B:						
Greenbelt, cemetery, very deep water table phase	---	---	---	---	Low	Moderate
Pavement & buildings, till substratum	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
38C:						
Greenbelt, cemetery, very deep water table phase	---	---	---	---	Low	Moderate
Pavement & buildings, till substratum	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		

Table 8.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
39D:						
Greenbelt, cemetery, very deep water table phase	---	---	---	---	Low	Moderate
Pavement & buildings, till substratum	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
40E:						
Greenbelt, cemetery, very deep water table phase	---	---	---	---	Low	Moderate
Pavement & buildings, till substratum	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
41F:						
Centralpark, very rubbly phase	---	---	---	---	Moderate	High
42G:						
Centralpark, very rubbly phase	---	---	---	---	Moderate	High
43F:						
Centralpark, very rubbly phase	---	---	---	---	Moderate	High
44G:						
Centralpark, very rubbly phase	---	---	---	---	Moderate	High
45A:						
Holderton	---	---	---	---	High	Moderate
46A:						
Holderton	---	---	---	---	High	Moderate
Fluvaquentic Endoaquolls	---	---	---	---	Moderate	Low
47A:						
Holderton	---	---	---	---	High	Moderate
Olinville	---	---	---	---	Moderate	Low
48A:						
Laguardia, very stony phase	---	---	---	---	Moderate	Low
49B:						
Laguardia, very stony phase	---	---	---	---	Moderate	Low

Table 8.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
50C:						
Laguardia, very stony phase	---	---	---	---	Moderate	Low
51A:						
Laguardia	---	---	---	---	Moderate	Low
52B:						
Laguardia	---	---	---	---	Moderate	Low
53C:						
Laguardia	---	---	---	---	Moderate	Low
54D:						
Laguardia	---	---	---	---	Moderate	Low
55E:						
Laguardia	---	---	---	---	Moderate	Low
56F:						
Laguardia	---	---	---	---	Moderate	Low
57A:						
Laguardia	---	---	---	---	Moderate	Low
Greenbelt	---	---	---	---	Low	Moderate
58B:						
Laguardia	---	---	---	---	Moderate	Low
Greenbelt	---	---	---	---	Low	Moderate
59A:						
Limerick	---	---	---	---	High	Moderate
60A:						
Natchaug	---	---	---	---	Moderate	Moderate
61A:						
Olinville	---	---	---	---	Moderate	Low
62A:						
Pavement & buildings, tidal marsh substratum	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
63A:						
Pavement & buildings, till substratum	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		

Table 8.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
64B:						
Pavement & buildings, till substratum-------	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
65C:						
Pavement & buildings, till substratum-------	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
66A:						
Pavement & buildings, alluvium substratum---	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
67A:						
Pavement & buildings, till substratum-------	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
Greenbelt--------------	---	---	---	---	Low	Moderate
68B:						
Pavement & buildings, till substratum-------	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
Greenbelt--------------	---	---	---	---	Low	Moderate
69C:						
Pavement & buildings, till substratum-------	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
Greenbelt--------------	---	---	---	---	Low	Moderate

Table 8.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
70A:						
Pavement & buildings, till substratum	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
Greenbelt	---	---	---	---	Low	Moderate
71B:						
Pavement & buildings, till substratum	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
Greenbelt	---	---	---	---	Low	Moderate
72C:						
Pavement & buildings, till substratum	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
Greenbelt	---	---	---	---	Low	Moderate
73D:						
Pavement & buildings, till substratum	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
Greenbelt	---	---	---	---	Low	Moderate
74A:						
Pavement & buildings, till substratum	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
Greenbelt	---	---	---	---	Low	Moderate
Rock outcrop	Lithic bedrock	0-0	>10	Indurated	---	---

Table 8.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
75B:						
Pavement & buildings, till substratum-------	Human-manufactured materials	0-0	6-40	Indurated	Moderate	High
	Dense material	6-40	>50	Weakly cemented		
Greenbelt--------------	---	---	---	---	Low	Moderate
Rock outcrop-----------	Lithic bedrock	0-0	>10	Indurated	---	---
76A:						
Pootatuck--------------	---	---	---	---	High	Moderate
77B:						
Pootatuck--------------	---	---	---	---	High	Moderate
78A:						
Pootatuck--------------	---	---	---	---	High	Moderate
Fluventic Hapludolls---	---	---	---	---	High	Low
79A:						
Pootatuck--------------	---	---	---	---	High	Moderate
Olinville--------------	---	---	---	---	Moderate	Low
80A:						
Pootatuck--------------	---	---	---	---	High	Moderate
Suncook----------------	---	---	---	---	Low	High
Olinville--------------	---	---	---	---	Moderate	Low
81A:						
Rikers-----------------	---	---	---	---	Low	Low
82F:						
Rikers-----------------	---	---	---	---	Low	Low
83G:						
Rock outcrop-----------	Lithic bedrock	0-0	>10	Indurated	---	---
Hollis-----------------	Lithic bedrock	10-20	>10	Indurated	Moderate	High
Chatfield--------------	Lithic bedrock	20-40	>10	Indurated	Low	High
84A:						
Suncook----------------	---	---	---	---	Low	High
85A:						
Suncook----------------	---	---	---	---	Low	High
86A:						
Tonawanda--------------	---	---	---	---	High	High
87B:						
Tonawanda--------------	---	---	---	---	High	High

Table 8.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
88A:						
Tonawanda, recreational parkland phase	---	---	---	---	High	Moderate
89B:						
Tonawanda, recreational parkland phase	---	---	---	---	High	Moderate
W:						
Water	---	---	---	---	---	---

Table 9.--Water Features

Table 9 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 9 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 9 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered is local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Table 9.--Water Features

(See text for definitions of terms used in this table. Upper limit, Lower limit, and Surface water depth are in inches. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Water Table Depth			Ponding			Flooding	
			Upper limit	Lower limit	Water table kind	Surface water depth	Duration	Frequency	Duration	Frequency
			in.	in.		in.				
1A:										
Canandaigua	D	Jan-May	0-18	> 72	Apparent	1-12	Long	Frequent	---	None
		Jun-Sep	0-18	> 72	Apparent	1-12	Brief	Frequent	---	None
		Oct-Dec	0-18	> 72	Apparent	1-12	Long	Frequent	---	None
Tonawanda	D	Jan-Mar	6-18	> 72	Apparent	---	---	None	---	None
		Apr-Oct	72	> 72	Apparent	---	---	None	---	None
		Nov-Dec	6-18	> 72	Apparent	---	---	None	---	None
2A:										
Centralpark	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
3B:										
Centralpark	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
4F:										
Centralpark	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
5D:										
Centralpark	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Greenbelt	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
6A:										
Centralpark	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Greenbelt	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Rock outcrop	---	---	---	---	---	---	---	---	---	---
7B:										
Centralpark	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Greenbelt	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Rock outcrop	---	---	---	---	---	---	---	---	---	---
8C:										
Centralpark	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Greenbelt	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Rock outcrop	---	---	---	---	---	---	---	---	---	---
9D:										
Centralpark	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Greenbelt	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Rock outcrop	---	---	---	---	---	---	---	---	---	---

Table 9.--Water Features--Continued

(See text for definitions of terms used in this table. Upper limit, Lower limit, and Surface water depth are in inches. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Water Table Depth			Ponding			Flooding	
			Upper limit	Lower limit	Water table kind	Surface water depth	Duration	Frequency	Duration	Frequency
			in.	in.		in.				
10D:										
Charlton	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
11C:										
Charlton	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Chatfield	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
12C:										
Charlton	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Chatfield	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Rock outcrop	---	---	---	---	---	---	---	---	---	---
13C:										
Chatfield, recreational parkland phase	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Greenbelt	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Hollis, recreational parkland phase	D	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
14D:										
Chatfield	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Charlton	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
15E:										
Chatfield	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Charlton	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
16B:										
Charlton	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Chatfield	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Hollis	D	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
17B:										
Chatfield	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Hollis	D	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Rock outcrop	---	---	---	---	---	---	---	---	---	---
Charlton	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None

Table 9.--Water Features--Continued

(See text for definitions of terms used in this table. Upper limit, Lower limit, and Surface water depth are in inches. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Water Table Depth: Upper limit	Water Table Depth: Lower limit	Water Table Depth: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			in.	in.		in.				
18C:										
Chatfield, recreational parkland phase	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Greenbelt	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Rock outcrop	---	---	---	---	---	---	---	---	---	---
19B:										
Chatfield, recreational parkland phase	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Hollis, recreational parkland phase	D	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Greenbelt	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
20B:										
Chatfield, recreational parkland phase	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Hollis, recreational parkland phase	D	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Rock outcrop	---	---	---	---	---	---	---	---	---	---
21D:										
Chatfield	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Hollis	D	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Rock outcrop	---	---	---	---	---	---	---	---	---	---
22F:										
Chatfield	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Hollis	D	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Rock outcrop	---	---	---	---	---	---	---	---	---	---
23A:										
Fluvaquentic Endoaquolls	D	Jan-Dec	0-6	> 72	Apparent	---	---	None	Very brief	Frequent
24A:										
Fluventic Hapludolls	C	Jan-Mar	18-40	> 72	Apparent	---	---	None	Very brief	Frequent
		Apr-Oct	40-72	> 72	Apparent	---	---	None	Very brief	Frequent
		Nov-Dec	18-40	> 72	Apparent	---	---	None	Very brief	Frequent

Table 9.--Water Features--Continued

(See text for definitions of terms used in this table. Upper limit, Lower limit, and Surface water depth are in inches. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydrologic group	Month	Water Table Depth			Ponding			Flooding	
			Upper limit	Lower limit	Water table kind	Surface water depth	Duration	Frequency	Duration	Frequency
			in.	in.		in.				
25A:										
Fluventic Hapludolls--	C	Jan-Mar	18-40	> 72	Apparent	---	---	None	Very brief	Frequent
		Apr-Oct	40-72	> 72	Apparent	---	---	None	Very brief	Frequent
		Nov-Dec	18-40	> 72	Apparent	---	---	None	Very brief	Frequent
26A:										
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
27B:										
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
28C:										
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
29D:										
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
30E:										
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
31F:										
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
32A:										
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Centralpark-----------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
33B:										
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Centralpark-----------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
34F:										
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Laguardia-------------	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
35A:										
Greenbelt, cemetery, deep water table phase----------------	B	Jan-Dec	37-60	> 72	Apparent	---	---	None	---	None
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
36A:										
Greenbelt, cemetery, very deep water table phase----------------	B	Jan-Dec	60-72	> 72	Apparent	---	---	None	---	None

Table 9.--Water Features--Continued

(See text for definitions of terms used in this table. Upper limit, Lower limit, and Surface water depth are in inches. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydrologic group	Month	Water Table Depth: Upper limit	Water Table Depth: Lower limit	Water Table Depth: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			in.	in.		in.				
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
37B:										
Greenbelt, cemetery, very deep water table phase----------------	B	Jan-Dec	60-72	> 72	Apparent	---	---	None	---	None
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
38C:										
Greenbelt, cemetery, very deep water table phase----------------	B	Jan-Dec	60-72	> 72	Apparent	---	---	None	---	None
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
39D:										
Greenbelt, cemetery, very deep water table phase----------------	B	Jan-Dec	60-72	> 72	Apparent	---	---	None	---	None
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
40E:										
Greenbelt, cemetery, very deep water table phase----------------	B	Jan-Dec	60-72	> 72	Apparent	---	---	None	---	None
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
41F:										
Centralpark, very rubbly phase---------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
42G:										
Centralpark, very rubbly phase---------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
43F:										
Centralpark, very rubbly phase---------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
44G:										
Centralpark, very rubbly phase---------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None

Table 9.--Water Features--Continued

(See text for definitions of terms used in this table. Upper limit, Lower limit, and Surface water depth are in inches. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Water Table Depth: Upper limit	Water Table Depth: Lower limit	Water Table Depth: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			in.	in.		in.				
45A:										
Holderton-------------	D	Jan-Mar	6-18	> 72	Apparent	---	---	None	Very brief	Occasional
		Apr-Oct	> 72	> 72	---	---	---	None	Very brief	Occasional
		Nov-Dec	6-18	> 72	Apparent	---	---	None	Very brief	Occasional
46A:										
Holderton-------------	D	Jan-Mar	6-18	> 72	Apparent	---	---	None	Very brief	Frequent
		Apr-Oct	> 72	> 72	---	---	---	None	Very brief	Frequent
		Nov-Dec	6-18	> 72	Apparent	---	---	None	Very brief	Frequent
Fluvaquentic Endoaquolls----------	D	Jan-Dec	0-18	> 72	Apparent	---	---	None	Very brief	Frequent
47A:										
Holderton-------------	D	Jan-Mar	6-18	> 72	Apparent	---	---	None	Very brief	Occasional
		Apr-Oct	> 72	> 72	---	---	---	None	Very brief	Occasional
		Nov-Dec	6-18	> 72	Apparent	---	---	None	Very brief	Occasional
Olinville-------------	C	Jan-Dec	30-40	> 72	Apparent	---	---	None	Very brief	Occasional
48A:										
Laguardia, very stony phase----------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
49B:										
Laguardia, very stony phase----------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
50C:										
Laguardia, very stony phase----------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
51A:										
Laguardia-------------	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
52B:										
Laguardia-------------	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
53C:										
Laguardia-------------	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
54D:										
Laguardia-------------	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
55E:										
Laguardia-------------	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
56F:										
Laguardia-------------	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None

Table 9.--Water Features--Continued

(See text for definitions of terms used in this table. Upper limit, Lower limit, and Surface water depth are in inches. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Water Table Depth			Ponding			Flooding	
			Upper limit	Lower limit	Water table kind	Surface water depth	Duration	Frequency	Duration	Frequency
			in.	in.		in.				
57A:										
Laguardia-------------	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
58B:										
Laguardia-------------	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
59A:										
Limerick--------------	D	Jan-Mar	0-6	> 72	Apparent	1-12	Very long	Frequent	---	None
		Apr-May	9-72	> 72	Apparent	1-12	Very long	Frequent	---	None
		Jun-Sep	9-72	> 72	Apparent	1-12	Long	Frequent	---	None
		Oct	9-72	> 72	Apparent	1-12	Very long	Frequent	---	None
		Nov-Dec	0-6	> 72	Apparent	1-12	Very long	Frequent	---	None
60A:										
Natchaug--------------	D	Jan-May	0	> 72	Apparent	1-12	Long	Frequent	---	None
		Jun-Sep	0	> 72	Apparent	1-12	Brief	Frequent	---	None
		Oct-Dec	0	> 72	Apparent	1-12	Long	Frequent	---	None
61A:										
Olinville-------------	C	Jan-Dec	30-40	> 72	Apparent	---	---	None	Very brief	Occasional
62A:										
Pavement & buildings, tidal marsh substratum-----------	D	---	> 72	> 72	---	---	---	---	---	---
63A:										
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
64B:										
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
65C:										
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
66A:										
Pavement & buildings, alluvium substratum--	D	---	> 72	> 72	---	---	---	---	---	---
67A:										
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None

Table 9.--Water Features--Continued

(See text for definitions of terms used in this table. Upper limit, Lower limit, and Surface water depth are in inches. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Water Table Depth			Ponding			Flooding	
			Upper limit	Lower limit	Water table kind	Surface water depth	Duration	Frequency	Duration	Frequency
			in.	in.		in.				
68B:										
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
69C:										
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
70A:										
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
71B:										
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
72C:										
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
73D:										
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
74A:										
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Rock outcrop----------	---	---	---	---	---	---	---	---	---	---
75B:										
Pavement & buildings, till substratum------	D	---	> 72	> 72	---	---	---	---	---	---
Greenbelt-------------	B	Jan-Dec	72	> 72	Apparent	---	---	None	---	None

Table 9.--Water Features--Continued

(See text for definitions of terms used in this table. Upper limit, Lower limit, and Surface water depth are in inches. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Water Table Depth			Ponding			Flooding	
			Upper limit	Lower limit	Water table kind	Surface water depth	Duration	Frequency	Duration	Frequency
			in.	in.		in.				
Rock outcrop	---	---	---	---	---	---	---	---	---	---
76A:										
Pootatuck	D	Jan-Dec	18-40	> 72	Apparent	---	---	None	Very brief	Occasional
77B:										
Pootatuck	D	Jan-Dec	18-40	> 72	Apparent	---	---	None	Very brief	Occasional
78A:										
Pootatuck	D	Jan-Dec	18-40	> 72	Apparent	---	---	None	Very brief	Occasional
Fluventic Hapludolls	C	Jan-Mar	18-40	> 72	Apparent	---	---	None	Very brief	Frequent
		Apr-Oct	40-72	> 72	Apparent	---	---	None	Very brief	Frequent
		Nov-Dec	18-40	> 72	Apparent	---	---	None	Very brief	Frequent
79A:										
Pootatuck	D	Jan-Dec	18-40	> 72	Apparent	---	---	None	Very brief	Occasional
Olinville	C	Jan-Dec	30-40	> 72	Apparent	---	---	None	Very brief	Occasional
80A:										
Pootatuck	D	Jan-Dec	18-40	> 72	Apparent	---	---	None	Very brief	Occasional
Suncook	A	Jan-Dec	40-72	> 72	Apparent	---	---	None	Very brief	Occasional
Olinville	C	Jan-Dec	30-40	> 72	Apparent	---	---	None	Very brief	Occasional
81A:										
Rikers	A	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
82F:										
Rikers	A	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
83G:										
Rock outcrop	---	---	---	---	---	---	---	---	---	---
Hollis	D	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
Chatfield	C	Jan-Dec	72	> 72	Apparent	---	---	None	---	None
84A:										
Suncook	A	Jan-Dec	40-72	> 72	Apparent	---	---	None	Very brief	Occasional
85A:										
Suncook	A	Jan-Dec	40-72	> 72	Apparent	---	---	None	Very brief	Occasional
86A:										
Tonawanda	D	Jan-Mar	6-18	> 72	Apparent	---	---	None	---	None
		Apr-Oct	72	> 72	Apparent	---	---	None	---	None
		Nov-Dec	6-18	> 72	Apparent	---	---	None	---	None

Table 9.--Water Features--Continued

(See text for definitions of terms used in this table. Upper limit, Lower limit, and Surface water depth are in inches. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Water Table Depth			Ponding			Flooding	
			Upper limit	Lower limit	Water table kind	Surface water depth	Duration	Frequency	Duration	Frequency
			in.	in.		in.				
87B:										
Tonawanda	D	Jan-Mar	6-18	> 72	Apparent	---	---	None	---	None
		Apr-Oct	72	> 72	Apparent	---	---	None	---	None
		Nov-Dec	6-18	> 72	Apparent	---	---	None	---	None
88A:										
Tonawanda, recreational parkland phase	D	Jan-Mar	6-18	> 72	Apparent	---	---	None	---	None
		Apr-Oct	72	> 72	Apparent	---	---	None	---	None
		Nov-Dec	6-18	> 72	Apparent	---	---	None	---	None
89B:										
Tonawanda, recreational parkland phase	D	Jan-Mar	6-18	> 72	Apparent	---	---	None	---	None
		Apr-Oct	72	> 72	Apparent	---	---	None	---	None
		Nov-Dec	6-18	> 72	Apparent	---	---	None	---	None
W:										
Water	---	---	> 72	> 72	---	---	---	---	---	---

Table 10.--Hydric Soils

In this section, hydric soils are defined and described. The hydric soils in the survey area are listed in Table 10. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1998).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 1998) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1998).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

Table 10.--Hydric Soils

[This report lists only those map unit components that are rated as hydric. Definitions of hydric criteria codes are included at the end of the report]

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
1A: Canandaigua-Tonawanda silt loams, 0 to 3 percent slopes	Canandaigua	65	Depressions	Yes	2B3, 3
25A: Fluvaquentic Endoaquolls, 0 to 3 percent slopes, frequently flooded	Fluvaquentic Endoaquolls	75	Flood plains	Yes	2B3
48A: Holderton-Fluvaquentic Endoaquolls complex, 0 to 3 percent slopes, frequently flooded	Fluvaquentic Endoaquolls	35	Flood plains	Yes	2B3
61A: Limerick loam, 0 to 3 percent slopes, frequently ponded	Limerick	80	Flood plains	Yes	3, 2B3
62A: Natchaug muck, 0 percent slopes	Natchaug	85	Depressions	Yes	1, 3

Explanation of hydric criteria codes:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
   A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
   B. are poorly drained or very poorly drained and have either:
      1.) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
      2.) a water table at a depth of 0.5 foot or less during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
      3.) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.
4. Soils that are frequently flooded for long or very long duration during the growing season.

Table 11.--Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Canandaigua	Fine-silty, mixed, active, nonacid, mesic Mollic Endoaquepts
Centralpark	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Centralpark, very rubbly phase	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Charlton	Coarse-loamy, mixed, active, mesic Typic Dystrudepts
Chatfield	Coarse-loamy, mixed, superactive, mesic Typic Dystrudepts
Chatfield, recreational parkland phase	Coarse-loamy, mixed, superactive, mesic Typic Dystrudepts
Fluvaquentic Endoaquolls	Fluvaquentic Endoaquolls
Fluventic Hapludolls	Fluventic Hapludolls
Greenbelt	Coarse-loamy, mixed, active, mesic Typic Dystrudepts
Greenbelt, cemetery, deep water table phase	Coarse-loamy, mixed, active, mesic Typic Dystrudepts
Greenbelt, cemetery, very deep water table phase	Coarse-loamy, mixed, active, mesic Typic Dystrudepts
*Holderton	Coarse-loamy, mixed, active, nonacid, mesic Mollic Endoaquepts
Hollis	Loamy, mixed, active, mesic Lithic Dystrudepts
Hollis, recreational parkland phase	Loamy, mixed, active, mesic Lithic Dystrudepts
Laguardia	Loamy-skeletal, mixed, active, nonacid, mesic Typic Udorthents
Laguardia, very stony phase	Loamy-skeletal, mixed, active, nonacid, mesic Typic Udorthents
*Limerick	Coarse-silty, mixed, active, nonacid, mesic Aeric Endoaquepts
Natchaug	Loamy, mixed, euic, mesic Terric Haplosaprists
Olinville	Coarse-loamy, mixed, mesic Fluventic Dystrudepts
Pootatuck	Coarse-loamy, mixed, active, mesic Fluvaquentic Dystrudepts
Rikers	Sandy-skeletal, mixed, mesic Typic Udorthents
Suncook	Mixed, mesic Typic Udipsamments
Tonawanda	Coarse-silty, mixed, active, nonacid, mesic Aeric Endoaquepts
Tonawanda, recreational parkland phase	Coarse-silty, mixed, active, nonacid, mesic Aeric Endoaquepts

Table 12.--Relationship Between Major Landforms, Soil Characteristics, and Drainage of Soils

Soil Characteristics	Excessively drained and somewhat excessively drained	Well drained	Moderately well drained	Somewhat poorly drained	Poorly drained	Very poorly drained
	SOILS FORMED IN UPLANDS IN GLACIAL TILL PLAINS					
COARSE-LOAMY SUBSOIL						
Very deep to bedrock contact		Charlton				
Moderately deep to bedrock contact		Chatfield				
Shallow to bedrock contact		Hollis				
	SOILS FORMED IN UPLAND DEPRESSIONS IN GLACIAL TILL PLAINS					
COARSE-SILTY SUBSOIL				Tonawanda		
FINE-SILTY SUBSOIL					Canandaigua	
ORGANIC MATERIALS						Natchaug
	SOILS FORMED IN ALLUVIAL MATERIALS; NOT SUBJECT TO FREQUENT FLOODING					
SANDY SUBSOIL	Suncook					
COARSE-LOAMY SUBSOIL			Pootatuck	Holderton		
COARSE-SILTY SUBSOIL					Limerick	

Table 12.--Relationship Between Major Landforms, Soil Characteristics, and Drainage of Soils--Continued

Soil Characteristics	Excessively drained and somewhat excessively drained	Well drained	Moderately well drained	Somewhat poorly drained	Poorly drained	Very poorly drained
	SOILS FORMED IN RECENT ALLUVIUM; SUBJECT TO FREQUENT FLOODING					
SANDY OR COARSE-LOAMY SUBSOIL --		Fluventic Hapludolls	Fluventic Hapludolls		Fluvaquentic Endoaquolls	Fluvaquentic Endoaquolls
	SOILS FORMED IN HUMAN TRANSPORTED MATERIAL (HTM)					
SANDY-SKELETAL						
Formed in coal slag; ---------- Greater than 10 percent artifacts	Rikers					
COARSE-LOAMY						
Formed in greater than 40 ----- inches of HTM; Less than 10 percent artifacts		Greenbelt				
Formed in less than 40 inches - of HTM, over alluvium; Less than 10 percent Artifacts			Olinville			
LOAMY-SKELETAL						
Formed in greater than 40 ----- inches of HTM; Less than 10 percent artifacts		Centralpark				
Formed in greater than 40 ----- inches of HTM; Greater than 10 percent artifacts		Laguardia				

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

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

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

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

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are `not limited`, `somewhat limited`, and `very limited`. The suitability ratings are expressed as `well suited`, `moderately suited`, `poorly suited`, and `unsuited` or as `good`, `fair`, and `poor`.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Index of Use and Management Tables

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development and construction materials. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

> *Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.*
>
> *The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.*

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Table 13.--Wildlife Habitat

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

In table 13, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of good indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of fair indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of poor indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of very poor indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated good are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are mountain mahogany, bitterbrush, snowberry, and big sagebrush.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

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

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Table 13.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grasses and legumes	Wild herbaceous plants	Shrubs	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
1A:										
Canandaigua	Very poor	Poor	Poor	Poor	Poor	Fair	Good	Very poor	Very poor	Fair
Tonawanda	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Very poor	Poor	Fair
2A:										
Centralpark	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor
3B:										
Centralpark	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
4F:										
Centralpark	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
5D:										
Centralpark	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
6A:										
Centralpark	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Poor
Rock Outcrop	---	---	---	---	---	---	---	---	---	---
7B:										
Centralpark	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Rock Outcrop	---	---	---	---	---	---	---	---	---	---
8C:										
Centralpark	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Rock Outcrop	---	---	---	---	---	---	---	---	---	---
9D:										
Centralpark	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grasses and legumes	Wild herba-ceous plants	Shrubs	Hard-wood trees	Conif-erous plants	Wetland plants	Shallow water areas	Open-land wild-life	Wood-land wild-life	Wetland wild-life
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Rock Outcrop	---	---	---	---	---	---	---	---	---	---
10D:										
Charlton	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
11C:										
Charlton	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Chatfield	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
12C:										
Charlton	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Chatfield	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Rock Outcrop	---	---	---	---	---	---	---	---	---	---
13C:										
Chatfield, recreational parkland phase	Poor	Poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Hollis, recreational parkland phase	Very poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor
14D:										
Chatfield	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Charlton	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
15E:										
Chatfield	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Charlton	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
16B:										
Charlton	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Chatfield	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Poor	Very poor
Hollis	Very poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor	Poor	Very poor	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grasses and legumes	Wild herbaceous plants	Shrubs	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
17B:										
Chatfield	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Hollis	Very poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor
Rock Outcrop	---	---	---	---	---	---	---	---	---	---
Charlton	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
18C:										
Chatfield, recreational parkland phase	Poor	Poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Rock Outcrop	---	---	---	---	---	---	---	---	---	---
19B:										
Chatfield, recreational parkland phase	Poor	Poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor
Hollis, recreational parkland phase	Very poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Good	Good	Poor
20B:										
Chatfield, recreational parkland phase	Poor	Poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor
Hollis, recreational parkland phase	Very poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor
Rock Outcrop	---	---	---	---	---	---	---	---	---	---
21D:										
Chatfield	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Hollis	Very poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor
Rock Outcrop	---	---	---	---	---	---	---	---	---	---
22F:										
Chatfield	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Hollis	Very poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grasses and legumes	Wild herbaceous plants	Shrubs	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
Rock Outcrop	---	---	---	---	---	---	---	---	---	---
23A:										
Fluvaquentic Endoaquolls	Poor	Poor	Poor	Poor	Poor	Good	Good	---	---	Good
24A:										
Fluventic Hapludolls	Fair	Fair	Fair	Poor	Fair	Fair	Fair	---	---	Fair
25A:										
Fluventic Hapludolls	Fair	Fair	Fair	Poor	Fair	Fair	Fair	---	---	Fair
26A:										
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor
27B:										
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
28C:										
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
29D:										
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
30E:										
Greenbelt	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
31F:										
Greenbelt	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
32A:										
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor
Centralpark	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor
33B:										
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Centralpark	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
34F:										
Greenbelt	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Laguardia	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
35A:										
Greenbelt, cemetery, deep water table phase	Good	Good	Good	Fair	Fair	Poor	Poor	Good	Fair	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grasses and legumes	Wild herbaceous plants	Shrubs	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
36A:										
Greenbelt, cemetery, very deep water table phase	Good	Good	Good	Good	Good	Poor	Poor	Fair	Good	Very poor
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
37B:										
Greenbelt, cemetery, very deep water table phase	Good	Good	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
38C:										
Greenbelt, cemetery, very deep water table phase	Good	Good	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
39D:										
Greenbelt, cemetery, very deep water table phase	Fair	Good	Good	Good	Good	Poor	Very poor	Fair	Fair	Very poor
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
40E:										
Greenbelt, cemetery, very deep water table phase	Very poor	Good	Good	Good	Good	Very poor	Very poor	Fair	Fair	Very poor
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
41F:										
Centralpark, very rubbly phase	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grasses and legumes	Wild herbaceous plants	Shrubs	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
42G:										
Centralpark, very rubbly phase	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
43F:										
Centralpark, very rubbly phase	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Very poor	Poor	Very poor
44G:										
Centralpark, very rubbly phase	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
45A:										
Holderton	Poor	Poor	Poor	Poor	Poor	Good	Fair	Very poor	Very poor	Fair
46A:										
Holderton	Poor	Poor	Poor	Poor	Poor	Good	Fair	Very poor	Very poor	Fair
Fluvaquentic Endoaquolls	Poor	Poor	Poor	Poor	Poor	Good	Good	---	---	Good
47A:										
Holderton	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Very poor	Very poor	Fair
Olinville	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair
48A:										
Laguardia, very stony phase	Fair	Fair	Fair	Fair	Fair	Very poor	Poor	Fair	Fair	Very poor
49B:										
Laguardia, very stony phase	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
50C:										
Laguardia, very stony phase	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
51A:										
Laguardia	Fair	Fair	Fair	Fair	Fair	Very poor	Poor	Fair	Fair	Very poor
52B:										
Laguardia	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
53C:										
Laguardia	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grasses and legumes	Wild herbaceous plants	Shrubs	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
54D:										
Laguardia	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
55E:										
Laguardia	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
56F:										
Laguardia	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
57A:										
Laguardia	Fair	Fair	Fair	Fair	Fair	Very poor	Poor	Fair	Fair	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor
58B:										
Laguardia	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
59A:										
Limerick	Very poor	Poor	Poor	Poor	Poor	Fair	Good	Very poor	Very poor	Fair
60A:										
Natchaug	Very poor	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair
61A:										
Olinville	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair
62A:										
Pavement & Buildings, tidal marsh substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
63A:										
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
64B:										
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
65C:										
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grasses and legumes	Wild herbaceous plants	Shrubs	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
66A:										
Pavement & Buildings, alluvium substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
67A:										
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor
68B:										
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
69C:										
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
70A:										
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor
71B:										
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
72C:										
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
73D:										
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grasses and legumes	Wild herbaceous plants	Shrubs	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
74A:										
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor
Rock Outcrop	---	---	---	---	---	---	---	---	---	---
75B:										
Pavement & Buildings, till substratum	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Greenbelt	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Rock Outcrop	---	---	---	---	---	---	---	---	---	---
76A:										
Pootatuck	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair
77B:										
Pootatuck	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair
78A:										
Pootatuck	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair
Fluventic Hapludolls	Fair	Fair	Fair	Poor	Fair	Fair	Fair	---	---	Fair
79A:										
Pootatuck	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair
Olinville	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair
80A:										
Pootatuck	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair
Suncook	Fair	Good	Good	Good	Good	Poor	Poor	Fair	Fair	Very poor
Olinville	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair
81A:										
Rikers	Poor	Poor	Poor	Fair	Fair	Very poor	Poor	Fair	Fair	Very poor
82F:										
Rikers	Very poor	Poor	Poor	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
83G:										
Rock Outcrop	---	---	---	---	---	---	---	---	---	---
Hollis	Very poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor
Chatfield	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grasses and legumes	Wild herba- ceous plants	Shrubs	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life
84A:										
Suncook	Fair	Good	Good	Good	Good	Poor	Poor	Fair	Fair	Very poor
85A:										
Suncook	Fair	Good	Good	Good	Good	Poor	Poor	Fair	Fair	Very poor
86A:										
Tonawanda	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Very poor	Very poor	Fair
87B:										
Tonawanda	Poor	Poor	Poor	Poor	Poor	Fair	Poor	Very poor	Very poor	Poor
88A:										
Tonawanda, recreational parkland phase	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Very poor	Very poor	Fair
89B:										
Tonawanda, recreational parkland phase	Poor	Poor	Poor	Poor	Poor	Fair	Poor	Very poor	Very poor	Poor
W:										
Water	---	---	---	---	---	---	---	---	---	---

Tables 14. and 15.--Recreational Development

The soils of the survey area are rated in tables 14 and 15 according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in tables 14 and 15 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Table 14.--Recreational Development I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
1A:							
Canandaigua	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
Tonawanda	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
2A:							
Centralpark	85	Not limited		Not limited		Not limited	
3B:							
Centralpark	85	Not limited		Not limited		Somewhat limited	
						Slope	0.88
4F:							
Centralpark	78	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
5D:							
Centralpark	60	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
Greenbelt	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
6A:							
Centralpark	55	Not limited		Not limited		Not limited	
Greenbelt	23	Not limited		Not limited		Not limited	
Rock Outcrop	15	Not rated		Not rated		Not rated	
7B:							
Centralpark	55	Not limited		Not limited		Somewhat limited	
						Slope	0.88
Greenbelt	23	Not limited		Not limited		Somewhat limited	
						Slope	0.88
Rock Outcrop	15	Not rated		Not rated		Not rated	

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
8C:							
Centralpark	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Greenbelt	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Rock Outcrop	15	Not rated		Not rated		Not rated	
9D:							
Centralpark	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
Greenbelt	25	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
Rock Outcrop	15	Not rated		Not rated		Not rated	
10D:							
Charlton	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
11C:							
Charlton	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Chatfield	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
						Depth to bedrock	0.86
						Gravel	0.22
12C:							
Charlton	43	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Chatfield	38	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
						Depth to bedrock	0.86
						Gravel	0.22
Rock Outcrop	18	Not rated		Not rated		Not rated	

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
13C:							
Chatfield, recreational parkland phase-----	61	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
		Too sandy	0.01	Too sandy	0.01	Depth to bedrock	0.97
						Too sandy	0.01
Greenbelt-----------	22	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Hollis, recreational parkland phase-----	15	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to bedrock	1.00
		Too sandy	0.01	Too sandy	0.01	Gravel	0.34
						Too sandy	0.01
						Large stones	0.01
14D:							
Chatfield-----------	56	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
						Depth to bedrock	0.86
						Gravel	0.22
Charlton------------	34	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
15E:							
Chatfield-----------	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
						Depth to bedrock	0.86
						Gravel	0.22
Charlton------------	31	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
16B:							
Charlton------------	45	Not limited		Not limited		Somewhat limited	
						Slope	0.88
Chatfield-----------	28	Not limited		Not limited		Somewhat limited	
						Slope	0.88
						Depth to bedrock	0.86
						Gravel	0.22
Hollis--------------	24	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.88
17B:							
Chatfield-----------	38	Not limited		Not limited		Somewhat limited	
						Slope	0.88
						Depth to bedrock	0.86
						Gravel	0.22

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
Hollis	27	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.88
Rock Outcrop	19	Not rated		Not rated		Not rated	
Charlton	15	Not limited		Not limited		Somewhat limited	
						Slope	0.88
18C:							
Chatfield, recreational parkland phase	45	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
		Too sandy	0.01	Too sandy	0.01	Depth to bedrock	0.97
						Too sandy	0.01
Greenbelt	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Rock Outcrop	13	Not rated		Not rated		Not rated	
19B:							
Chatfield, recreational parkland phase	66	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Depth to bedrock	0.97
						Slope	0.50
						Too sandy	0.01
Hollis, recreational parkland phase	19	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too sandy	0.01	Too sandy	0.01	Slope	0.50
						Gravel	0.34
						Too sandy	0.01
						Large stones	0.01
Greenbelt	13	Not limited		Not limited		Somewhat limited	
						Slope	0.50
20B:							
Chatfield, recreational parkland phase	52	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Depth to bedrock	0.97
						Slope	0.50
						Too sandy	0.01

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
Hollis, recreational parkland phase-----	28	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too sandy	0.01	Too sandy	0.01	Slope	0.50
						Gravel	0.34
						Too sandy	0.01
						Large stones	0.01
Rock Outcrop--------	16	Not rated		Not rated		Not rated	
21D:							
Chatfield-----------	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
						Depth to bedrock	0.86
						Gravel	0.22
Hollis--------------	23	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Rock Outcrop--------	15	Not rated		Not rated		Not rated	
22F:							
Chatfield-----------	53	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
						Depth to bedrock	0.86
						Gravel	0.22
Hollis--------------	25	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Rock Outcrop--------	20	Not rated		Not rated		Not rated	
23A:							
Fluvaquentic Endoaquolls--------	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
24A:							
Fluventic Hapludolls	75	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
25A:							
Fluventic Hapludolls	50	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
26A:							
Greenbelt-----------	78	Not limited		Not limited		Not limited	
27B:							
Greenbelt-----------	78	Not limited		Not limited		Somewhat limited	
						Slope	0.88
28C:							
Greenbelt-----------	78	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
29D:							
Greenbelt-----------	78	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
30E:							
Greenbelt-----------	78	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
31F:							
Greenbelt-----------	78	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
32A:							
Greenbelt-----------	55	Not limited		Not limited		Not limited	
Centralpark---------	35	Not limited		Not limited		Not limited	
33B:							
Greenbelt-----------	55	Not limited		Not limited		Somewhat limited	
						Slope	0.88
Centralpark---------	35	Not limited		Not limited		Somewhat limited	
						Slope	0.88
34F:							
Greenbelt-----------	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
Laguardia-----------	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
35A:							
Greenbelt, cemetery, deep water table phase--------------	53	Not limited		Not limited		Not limited	
Pavement & Buildings, till substratum---------	30	Not rated		Not rated		Not rated	

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
36A:							
Greenbelt, cemetery, very deep water table phase	60	Not limited		Not limited		Not limited	
Pavement & Buildings, till substratum	35	Not rated		Not rated		Not rated	
37B:							
Greenbelt, cemetery, very deep water table phase	70	Not limited		Not limited		Somewhat limited	
						Slope	0.88
Pavement & Buildings, till substratum	25	Not rated		Not rated		Not rated	
38C:							
Greenbelt, cemetery, very deep water table phase	61	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Pavement & Buildings, till substratum	33	Not rated		Not rated		Not rated	
39D:							
Greenbelt, cemetery, very deep water table phase	66	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
Pavement & Buildings, till substratum	27	Not rated		Not rated		Not rated	

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
40E:							
Greenbelt, cemetery, very deep water table phase	70	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
Pavement & Buildings, till substratum	22	Not rated		Not rated		Not rated	
41F:							
Centralpark, very rubbly phase	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00	Large stones	1.00
42G:							
Centralpark, very rubbly phase	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00	Large stones	1.00
43F:							
Centralpark, very rubbly phase	40	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00	Large stones	1.00
44G:							
Centralpark, very rubbly phase	40	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00	Large stones	1.00
45A:							
Holderton	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
46A:							
Holderton	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
Fluvaquentic Endoaquolls	35	Very limited		Very limited		Very limited	

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
47A:							
Holderton-----------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
Olinville-----------	40	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
48A:							
Laguardia, very stony phase--------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.19	Large stones	0.19	Large stones	0.19
49B:							
Laguardia, very stony phase--------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.19	Large stones	0.19	Slope	0.88
						Large stones	0.19
50C:							
Laguardia, very stony phase--------	80	Somewhat limited		Somewhat limited		Very limited	
		Large stones	0.19	Large stones	0.19	Slope	1.00
		Slope	0.16	Slope	0.16	Large stones	0.19
51A:							
Laguardia-----------	80	Not limited		Not limited		Not limited	
52B:							
Laguardia-----------	80	Not limited		Not limited		Somewhat limited	
						Slope	0.88
53C:							
Laguardia-----------	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
54D:							
Laguardia-----------	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
55E:							
Laguardia-----------	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
56F:							
Laguardia-----------	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
57A:							
Laguardia-----------	50	Not limited		Not limited		Not limited	
Greenbelt-----------	30	Not limited		Not limited		Not limited	

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
58B:							
Laguardia-----------	50	Not limited		Not limited		Somewhat limited	
						Slope	0.88
Greenbelt-----------	30	Not limited		Not limited		Somewhat limited	
						Slope	0.88
59A:							
Limerick------------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
60A:							
Natchaug------------	85	Not rated		Not rated		Not rated	
		Not rated; Surface Fragments > 75mm		Not rated; Surface Fragments > 75mm		Not rated; Surface Fragments > 75mm	
		Not rated; Surface clay percent or taxonomic class		Not rated; Surface clay percent or taxonomic class		Not rated; Surface clay percent or taxonomic class	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
61A:							
Olinville-----------	80	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
62A:							
Pavement & Buildings, tidal marsh substratum---	92	Not rated		Not rated		Not rated	
63A:							
Pavement & Buildings, till substratum---------	92	Not rated		Not rated		Not rated	
64B:							
Pavement & Buildings, till substratum---------	92	Not rated		Not rated		Not rated	

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
65C:							
Pavement & Buildings, till substratum---------	92	Not rated		Not rated		Not rated	
66A:							
Pavement & Buildings, alluvium substratum---------	92	Not rated		Not rated		Not rated	
67A:							
Pavement & Buildings, till substratum---------	55	Not rated		Not rated		Not rated	
Greenbelt-----------	38	Not limited		Not limited		Not limited	
68B:							
Pavement & Buildings, till substratum---------	55	Not rated		Not rated		Not rated	
Greenbelt-----------	38	Not limited		Not limited		Somewhat limited	
						Slope	0.88
69C:							
Pavement & Buildings, till substratum---------	55	Not rated		Not rated		Not rated	
Greenbelt-----------	38	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
70A:							
Pavement & Buildings, till substratum	80	Not rated		Not rated		Not rated	
Greenbelt	12	Not limited		Not limited		Not limited	
71B:							
Pavement & Buildings, till substratum	80	Not rated		Not rated		Not rated	
Greenbelt	12	Not limited		Not limited		Somewhat limited Slope	 0.88
72C:							
Pavement & Buildings, till substratum	80	Not rated		Not rated		Not rated	
Greenbelt	12	Somewhat limited Slope	 0.37	Somewhat limited Slope	 0.37	Very limited Slope	 1.00
73D:							
Pavement & Buildings, till substratum	80	Not rated		Not rated		Not rated	
Greenbelt	12	Very limited Too steep	 1.00	Very limited Too steep	 1.00	Very limited Slope	 1.00
74A:							
Pavement & Buildings, till substratum	70	Not rated		Not rated		Not rated	

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
Greenbelt-----------	12	Not limited		Not limited		Not limited	
Rock Outcrop--------	10	Not rated		Not rated		Not rated	
75B:							
Pavement & Buildings, till substratum---------	70	Not rated		Not rated		Not rated	
Greenbelt-----------	12	Not limited		Not limited		Somewhat limited	
						Slope	0.88
Rock Outcrop--------	10	Not rated		Not rated		Not rated	
76A:							
Pootatuck-----------	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.56	Depth to saturated zone	0.88
		Depth to saturated zone	0.88			Flooding	0.60
77B:							
Pootatuck-----------	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.56	Depth to saturated zone	0.88
		Depth to saturated zone	0.88			Slope	0.88
						Flooding	0.60
78A:							
Pootatuck-----------	60	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.56	Depth to saturated zone	0.88
		Depth to saturated zone	0.88			Flooding	0.60
Fluventic Hapludolls	30	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
79A:							
Pootatuck	55	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.56	Depth to saturated zone	0.88
		Depth to saturated zone	0.88			Flooding	0.60
Olinville	35	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
80A:							
Pootatuck	43	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.56	Depth to saturated zone	0.88
		Depth to saturated zone	0.88			Flooding	0.60
Suncook	30	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
Olinville	20	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
81A:							
Rikers	75	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
		Gravel	0.11	Gravel	0.11	Gravel	1.00
82F:							
Rikers	75	Very limited		Very limited		Very limited	
		Too steep	1.00	Too sandy	1.00	Slope	1.00
		Too sandy	1.00	Too steep	1.00	Too sandy	1.00
		Gravel	0.11	Gravel	0.11	Gravel	1.00
83G:							
Rock Outcrop	70	Not rated		Not rated		Not rated	
Hollis	18	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Chatfield	12	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
						Depth to bedrock	0.86
						Gravel	0.22
84A:							
Suncook	80	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
85A:							
Suncook	77	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60

Table 14.--Recreational Development I--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
86A:							
Tonawanda	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
87B:							
Tonawanda	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	0.88
88A:							
Tonawanda, recreational parkland phase	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
89B:							
Tonawanda, recreational parkland phase	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	0.88
W:							
Water	100	Not rated		Not rated		Not rated	

Table 15.--Recreational Development II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Canandaigua	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
Tonawanda	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
2A:							
Centralpark	85	Not limited		Not limited		Somewhat limited	
						Droughty	0.23
3B:							
Centralpark	85	Not limited		Not limited		Somewhat limited	
						Droughty	0.23
4F:							
Centralpark	78	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
						Droughty	0.23
5D:							
Centralpark	60	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
						Droughty	0.23
Greenbelt	30	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Too steep	1.00
		Slope	0.50				
6A:							
Centralpark	55	Not limited		Not limited		Somewhat limited	
						Droughty	0.23
Greenbelt	23	Not limited		Not limited		Not limited	
Rock Outcrop	15	Not rated		Not rated		Not rated	
7B:							
Centralpark	55	Not limited		Not limited		Somewhat limited	
						Droughty	0.23
Greenbelt	23	Not limited		Not limited		Not limited	

Table 15.--Recreational Development II--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
Rock Outcrop	15	Not rated		Not rated		Not rated	
8C:							
Centralpark	55	Not limited		Not limited		Somewhat limited	
						Slope	0.37
						Droughty	0.23
Greenbelt	25	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
Rock Outcrop	15	Not rated		Not rated		Not rated	
9D:							
Centralpark	55	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
						Droughty	0.23
Greenbelt	25	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Too steep	1.00
		Slope	0.50				
Rock Outcrop	15	Not rated		Not rated		Not rated	
10D:							
Charlton	85	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
11C:							
Charlton	50	Not limited		Not limited		Somewhat limited	
						Slope	0.37
Chatfield	40	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.86
						Slope	0.37
12C:							
Charlton	43	Not limited		Not limited		Somewhat limited	
						Slope	0.37
Chatfield	38	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.86
						Slope	0.37
Rock Outcrop	18	Not rated		Not rated		Not rated	

Table 15.--Recreational Development II--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
13C:							
Chatfield, recreational parkland phase	61	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Depth to bedrock	0.97
						Slope	0.37
						Droughty	0.32
Greenbelt	22	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
Hollis, recreational parkland phase	15	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.01	Too sandy	0.01	Depth to bedrock	1.00
						Droughty	1.00
						Slope	0.37
						Large stones	0.01
14D:							
Chatfield	56	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
						Depth to bedrock	0.86
Charlton	34	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
15E:							
Chatfield	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Too steep	1.00
						Depth to bedrock	0.86
Charlton	31	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Too steep	1.00
16B:							
Charlton	45	Not limited		Not limited		Not limited	
Chatfield	28	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.86
Hollis	24	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
17B:							
Chatfield	38	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.86
Hollis	27	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
Rock Outcrop	19	Not rated		Not rated		Not rated	

Table 15.--Recreational Development II--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
Charlton	15	Not limited		Not limited		Not limited	
18C:							
Chatfield, recreational parkland phase	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Depth to bedrock	0.97
						Slope	0.37
						Droughty	0.32
Greenbelt	40	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
Rock Outcrop	13	Not rated		Not rated		Not rated	
19B:							
Chatfield, recreational parkland phase	66	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Depth to bedrock	0.97
						Droughty	0.32
Hollis, recreational parkland phase	19	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.01	Too sandy	0.01	Depth to bedrock	1.00
						Droughty	1.00
						Large stones	0.01
Greenbelt	13	Not limited		Not limited		Not limited	
20B:							
Chatfield, recreational parkland phase	52	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Depth to bedrock	0.97
						Droughty	0.32
Hollis, recreational parkland phase	28	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.01	Too sandy	0.01	Depth to bedrock	1.00
						Droughty	1.00
						Large stones	0.01
Rock Outcrop	16	Not rated		Not rated		Not rated	

Table 15.--Recreational Development II--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
21D:							
Chatfield-----------	55	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
						Depth to bedrock	0.86
Hollis--------------	23	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Depth to bedrock	1.00
		Slope	0.50			Too steep	1.00
						Droughty	1.00
Rock Outcrop--------	15	Not rated		Not rated		Not rated	
22F:							
Chatfield-----------	53	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
						Depth to bedrock	0.86
Hollis--------------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Depth to bedrock	1.00
		Water erosion	1.00	Slope	1.00	Too steep	1.00
						Droughty	1.00
Rock Outcrop--------	20	Not rated		Not rated		Not rated	
23A:							
Fluvaquentic Endoaquolls--------	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
24A:							
Fluventic Hapludolls	75	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
25A:							
Fluventic Hapludolls	50	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
26A:							
Greenbelt-----------	78	Not limited		Not limited		Not limited	
27B:							
Greenbelt-----------	78	Not limited		Not limited		Not limited	

Table 15.--Recreational Development II--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
28C:							
Greenbelt-----------	78	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
29D:							
Greenbelt-----------	78	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Too steep	1.00
		Slope	0.50				
30E:							
Greenbelt-----------	78	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Too steep	1.00
		Water erosion	1.00	Slope	0.22		
31F:							
Greenbelt-----------	78	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Too steep	1.00
		Water erosion	1.00	Slope	1.00		
32A:							
Greenbelt-----------	55	Not limited		Not limited		Not limited	
Centralpark---------	35	Not limited		Not limited		Somewhat limited	
						Droughty	0.23
33B:							
Greenbelt-----------	55	Not limited		Not limited		Not limited	
Centralpark---------	35	Not limited		Not limited		Somewhat limited	
						Droughty	0.23
34F:							
Greenbelt-----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Too steep	1.00
		Water erosion	1.00	Slope	1.00		
Laguardia-----------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
35A:							
Greenbelt, cemetery, deep water table phase--------------	53	Not limited		Not limited		Not limited	
Pavement & Buildings, till substratum---------	30	Not rated		Not rated		Not rated	
36A:							
Greenbelt, cemetery, very deep water table phase--------	60	Not limited		Not limited		Not limited	

Table 15.--Recreational Development II--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
Pavement & Buildings, till substratum---------	35	Not rated		Not rated		Not rated	
37B:							
Greenbelt, cemetery, very deep water table phase--------	70	Not limited		Not limited		Not limited	
Pavement & Buildings, till substratum---------	25	Not rated		Not rated		Not rated	
38C:							
Greenbelt, cemetery, very deep water table phase--------	61	Not limited		Not limited		Somewhat limited	
						Slope	0.37
Pavement & Buildings, till substratum---------	33	Not rated		Not rated		Not rated	
39D:							
Greenbelt, cemetery, very deep water table phase--------	66	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
Pavement & Buildings, till substratum---------	27	Not rated		Not rated		Not rated	
40E:							
Greenbelt, cemetery, very deep water table phase--------	70	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Too steep	1.00
Pavement & Buildings, till substratum---------	22	Not rated		Not rated		Not rated	

Table 15.--Recreational Development II--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
41F:							
Centralpark, very rubbly phase-------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Large stones	1.00	Too steep	1.00
		Large stones	1.00	Slope	1.00	Droughty	0.23
42G:							
Centralpark, very rubbly phase-------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
		Large stones	1.00	Large stones	1.00	Droughty	0.23
43F:							
Centralpark, very rubbly phase-------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Large stones	1.00	Too steep	1.00
		Large stones	1.00	Slope	1.00	Droughty	0.23
44G:							
Centralpark, very rubbly phase-------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
		Large stones	1.00	Large stones	1.00	Droughty	0.23
45A:							
Holderton-----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Flooding	0.60
46A:							
Holderton-----------	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
Fluvaquentic Endoaquolls--------	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
47A:							
Holderton-----------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Flooding	0.60
Olinville-----------	40	Not limited		Not limited		Somewhat limited	
						Flooding	0.60

Table 15.--Recreational Development II--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
48A:							
Laguardia, very stony phase	80	Somewhat limited		Somewhat limited		Not limited	
		Large stones	0.19	Large stones	0.19		
49B:							
Laguardia, very stony phase	80	Somewhat limited		Somewhat limited		Not limited	
		Large stones	0.19	Large stones	0.19		
50C:							
Laguardia, very stony phase	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.19	Large stones	0.19	Slope	0.16
51A:							
Laguardia	80	Not limited		Not limited		Not limited	
52B:							
Laguardia	80	Not limited		Not limited		Not limited	
53C:							
Laguardia	80	Not limited		Not limited		Somewhat limited	
						Slope	0.37
54D:							
Laguardia	80	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
55E:							
Laguardia	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Too steep	1.00
56F:							
Laguardia	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
57A:							
Laguardia	50	Not limited		Not limited		Not limited	
Greenbelt	30	Not limited		Not limited		Not limited	
58B:							
Laguardia	50	Not limited		Not limited		Not limited	
Greenbelt	30	Not limited		Not limited		Not limited	
59A:							
Limerick	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
60A:							
Natchaug	85	Not rated		Not rated		Not rated	
		Not rated; Surface Fragments > 75mm		Not rated; Surface Fragments > 75mm		Not rated; Surface clay percent	

Table 15.--Recreational Development II--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
		Not rated; Surface clay percent or taxonomic class		Not rated; Surface clay percent or taxonomic class		Not rated; Surface Fragments > 75mm	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Organic matter content	1.00
						Depth to saturated zone	1.00
61A: Olinville----------	80	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
62A: Pavement & Buildings, tidal marsh substratum---	92	Not rated		Not rated		Not rated	
63A: Pavement & Buildings, till substratum---------	92	Not rated		Not rated		Not rated	
64B: Pavement & Buildings, till substratum---------	92	Not rated		Not rated		Not rated	
65C: Pavement & Buildings, till substratum---------	92	Not rated		Not rated		Not rated	
66A: Pavement & Buildings, alluvium substratum---------	92	Not rated		Not rated		Not rated	

Table 15.--Recreational Development II--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
67A:							
Pavement & Buildings, till substratum	55	Not rated		Not rated		Not rated	
Greenbelt	38	Not limited		Not limited		Not limited	
68B:							
Pavement & Buildings, till substratum	55	Not rated		Not rated		Not rated	
Greenbelt	38	Not limited		Not limited		Not limited	
69C:							
Pavement & Buildings, till substratum	55	Not rated		Not rated		Not rated	
Greenbelt	38	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
70A:							
Pavement & Buildings, till substratum	80	Not rated		Not rated		Not rated	
Greenbelt	12	Not limited		Not limited		Not limited	
71B:							
Pavement & Buildings, till substratum	80	Not rated		Not rated		Not rated	
Greenbelt	12	Not limited		Not limited		Not limited	

Table 15.--Recreational Development II--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
72C:							
Pavement & Buildings, till substratum---------	80	Not rated		Not rated		Not rated	
Greenbelt-----------	12	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
73D:							
Pavement & Buildings, till substratum---------	80	Not rated		Not rated		Not rated	
Greenbelt-----------	12	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Too steep	1.00
		Slope	0.50				
74A:							
Pavement & Buildings, till substratum---------	70	Not rated		Not rated		Not rated	
Greenbelt-----------	12	Not limited		Not limited		Not limited	
Rock Outcrop--------	10	Not rated		Not rated		Not rated	
75B:							
Pavement & Buildings, till substratum---------	70	Not rated		Not rated		Not rated	
Greenbelt-----------	12	Not limited		Not limited		Not limited	
Rock Outcrop--------	10	Not rated		Not rated		Not rated	

Table 15.--Recreational Development II--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
76A:							
Pootatuck	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.18	Depth to saturated zone	0.18	Flooding	0.60
77B:							
Pootatuck	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.18	Depth to saturated zone	0.18	Flooding	0.60
78A:							
Pootatuck	60	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.18	Depth to saturated zone	0.18	Flooding	0.60
Fluventic Hapludolls	30	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
79A:							
Pootatuck	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.18	Depth to saturated zone	0.18	Flooding	0.60
Olinville	35	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
80A:							
Pootatuck	43	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.18	Depth to saturated zone	0.18	Flooding	0.60
Suncook	30	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
Olinville	20	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
81A:							
Rikers	75	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
						Droughty	0.66
						Gravel	0.11
82F:							
Rikers	75	Very limited		Very limited		Very limited	
		Slope	1.00	Too sandy	1.00	Too steep	1.00
		Too sandy	1.00	Slope	1.00	Too sandy	1.00
						Droughty	0.66
						Gravel	0.11
83G:							
Rock Outcrop	70	Not rated		Not rated		Not rated	

Table 15.--Recreational Development II--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
Hollis	18	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Water erosion	1.00	Water erosion	1.00	Too steep	1.00
						Droughty	1.00
Chatfield	12	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
						Depth to bedrock	0.86
84A:							
Suncook	80	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
85A:							
Suncook	77	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
86A:							
Tonawanda	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
87B:							
Tonawanda	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
88A:							
Tonawanda, recreational parkland phase	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
89B:							
Tonawanda, recreational parkland phase	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
W:							
Water	100	Not rated		Not rated		Not rated	

Tables 16. and 17.--Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 16 and 17 show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Table 16.--Building Site Development I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Canandaigua	65	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Tonawanda	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
2A:							
Centralpark	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.69	Large stones	0.69	Large stones	0.69
3B:							
Centralpark	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.69	Large stones	0.69	Large stones	0.69
						Slope	0.12
4F:							
Centralpark	78	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones	0.69	Large stones	0.69	Large stones	0.69
5D:							
Centralpark	60	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones	0.69	Large stones	0.69	Large stones	0.69
Greenbelt	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
6A:							
Centralpark	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.69	Large stones	0.69	Large stones	0.69
Greenbelt	23	Not limited		Not limited		Not limited	
Rock outcrop	15	Not rated		Not rated		Not rated	
7B:							
Centralpark	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.69	Large stones	0.69	Large stones	0.69
						Slope	0.12
Greenbelt	23	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 16.--Building Site Development I--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
8C:							
Centralpark	55	Somewhat limited		Somewhat limited		Very limited	
		Large stones	0.69	Large stones	0.69	Slope	1.00
		Slope	0.37	Slope	0.37	Large stones	0.69
Greenbelt	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
9D:							
Centralpark	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones	0.69	Large stones	0.69	Large stones	0.69
Greenbelt	25	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
10D:							
Charlton	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
11C:							
Charlton	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Chatfield	40	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to hard bedrock	0.86
12C:							
Charlton	43	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Chatfield	38	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to hard bedrock	0.86
Rock outcrop	18	Not rated		Not rated		Not rated	
13C:							
Chatfield, recreational parkland phase	61	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.97	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to hard bedrock	0.97
Greenbelt	22	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00

Table 16.--Building Site Development I--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
Hollis, recreational parkland phase-----	15	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to hard bedrock	1.00
14D:							
Chatfield-----------	56	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Depth to hard bedrock	0.86
Charlton------------	34	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
15E:							
Chatfield-----------	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Depth to hard bedrock	0.86
Charlton------------	31	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
16B:							
Charlton------------	45	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Chatfield-----------	28	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Depth to hard bedrock	0.86
						Slope	0.12
Hollis--------------	24	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
						Slope	0.12
17B:							
Chatfield-----------	38	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Depth to hard bedrock	0.86
						Slope	0.12
Hollis--------------	27	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
						Slope	0.12
Rock outcrop--------	19	Not rated		Not rated		Not rated	
Charlton------------	15	Not limited		Not limited		Somewhat limited	
						Slope	0.12

Table 16.--Building Site Development I--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
18C:							
Chatfield, recreational parkland phase	45	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.97	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to hard bedrock	0.97
Greenbelt	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Rock outcrop	13	Not rated		Not rated		Not rated	
19B:							
Chatfield, recreational parkland phase	66	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.97	Depth to hard bedrock	1.00	Depth to hard bedrock	0.97
Hollis, recreational parkland phase	19	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Greenbelt	13	Not limited		Not limited		Not limited	
20B:							
Chatfield, recreational parkland phase	52	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.97	Depth to hard bedrock	1.00	Depth to hard bedrock	0.97
Hollis, recreational parkland phase	28	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Rock outcrop	16	Not rated		Not rated		Not rated	
21D:							
Chatfield	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Depth to hard bedrock	0.86
Hollis	23	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 16.--Building Site Development I--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
22F:							
Chatfield-----------	53	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Depth to hard bedrock	0.86
Hollis--------------	25	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Rock outcrop--------	20	Not rated		Not rated		Not rated	
23A:							
Fluvaquentic Endoaquolls--------	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
24A:							
Fluventic Hapludolls	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
25A:							
Fluventic Hapludolls	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
26A:							
Greenbelt-----------	78	Not limited		Not limited		Not limited	
27B:							
Greenbelt-----------	78	Not limited		Not limited		Somewhat limited	
						Slope	0.12
28C:							
Greenbelt-----------	78	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
29D:							
Greenbelt-----------	78	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
30E:							
Greenbelt-----------	78	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
31F:							
Greenbelt-----------	78	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
32A:							
Greenbelt-----------	55	Not limited		Not limited		Not limited	

Table 16.--Building Site Development I--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
Centralpark---------	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.69	Large stones	0.69	Large stones	0.69
33B:							
Greenbelt-----------	55	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Centralpark---------	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.69	Large stones	0.69	Large stones	0.69
						Slope	0.12
34F:							
Greenbelt-----------	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
Laguardia-----------	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
35A:							
Greenbelt, cemetery, deep water table phase--------------	53	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.94		
Pavement & buildings, till substratum---------	30	Not rated		Not rated		Not rated	
36A:							
Greenbelt, cemetery, very deep water table phase--------	60	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.03		
Pavement & buildings, till substratum---------	35	Not rated		Not rated		Not rated	
37B:							
Greenbelt, cemetery, very deep water table phase--------	70	Not limited		Somewhat limited		Somewhat limited	
				Depth to saturated zone	0.03	Slope	0.12
Pavement & buildings, till substratum---------	25	Not rated		Not rated		Not rated	
38C:							
Greenbelt, cemetery, very deep water table phase--------	61	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
				Depth to saturated zone	0.03		

Table 16.--Building Site Development I--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
Pavement & buildings, till substratum	33	Not rated		Not rated		Not rated	
39D:							
Greenbelt, cemetery, very deep water table phase	66	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
				Depth to saturated zone	0.03		
Pavement & buildings, till substratum	27	Not rated		Not rated		Not rated	
40E:							
Greenbelt, cemetery, very deep water table phase	70	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
				Depth to saturated zone	0.03		
Pavement & buildings, till substratum	22	Not rated		Not rated		Not rated	
41F:							
Centralpark, very rubbly phase	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones	0.69	Large stones	0.69	Large stones	0.69
42G:							
Centralpark, very rubbly phase	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones	0.69	Large stones	0.69	Large stones	0.69
43F:							
Centralpark, very rubbly phase	40	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones	0.69	Large stones	0.69	Large stones	0.69
44G:							
Centralpark, very rubbly phase	40	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones	0.69	Large stones	0.69	Large stones	0.69
45A:							
Holderton	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 16.--Building Site Development I--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
46A:							
Holderton	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Fluvaquentic Endoaquolls	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
47A:							
Holderton	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Olinville	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.99		
48A:							
Laguardia, very stony phase	80	Not limited		Not limited		Not limited	
49B:							
Laguardia, very stony phase	80	Not limited		Not limited		Somewhat limited	
						Slope	0.12
50C:							
Laguardia, very stony phase	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
51A:							
Laguardia	80	Not limited		Not limited		Not limited	
52B:							
Laguardia	80	Not limited		Not limited		Somewhat limited	
						Slope	0.12
53C:							
Laguardia	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
54D:							
Laguardia	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
55E:							
Laguardia	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00

Table 16.--Building Site Development I--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
56F:							
Laguardia-----------	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
57A:							
Laguardia-----------	50	Not limited		Not limited		Not limited	
Greenbelt-----------	30	Not limited		Not limited		Not limited	
58B:							
Laguardia-----------	50	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Greenbelt-----------	30	Not limited		Not limited		Somewhat limited	
						Slope	0.12
59A:							
Limerick------------	80	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
60A:							
Natchaug------------	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00			Organic matter content	1.00
61A:							
Olinville-----------	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.99		
62A:							
Pavement & buildings, tidal marsh substratum---	92	Not rated		Not rated		Not rated	
63A:							
Pavement & buildings, till substratum---------	92	Not rated		Not rated		Not rated	
64B:							
Pavement & buildings, till substratum---------	92	Not rated		Not rated		Not rated	
65C:							
Pavement & buildings, till substratum---------	92	Not rated		Not rated		Not rated	

Table 16.--Building Site Development I--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
66A:							
Pavement & buildings, alluvium substratum----------	92	Not rated		Not rated		Not rated	
67A:							
Pavement & buildings, till substratum----------	55	Not rated		Not rated		Not rated	
Greenbelt-----------	38	Not limited		Not limited		Not limited	
68B:							
Pavement & buildings, till substratum----------	55	Not rated		Not rated		Not rated	
Greenbelt-----------	38	Not limited		Not limited		Somewhat limited	
						Slope	0.12
69C:							
Pavement & buildings, till substratum----------	55	Not rated		Not rated		Not rated	
Greenbelt-----------	38	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
70A:							
Pavement & buildings, till substratum----------	80	Not rated		Not rated		Not rated	
Greenbelt-----------	12	Not limited		Not limited		Not limited	
71B:							
Pavement & buildings, till substratum----------	80	Not rated		Not rated		Not rated	
Greenbelt-----------	12	Not limited		Not limited		Somewhat limited	
						Slope	0.12
72C:							
Pavement & buildings, till substratum----------	80	Not rated		Not rated		Not rated	
Greenbelt-----------	12	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
73D:							
Pavement & buildings, till substratum----------	80	Not rated		Not rated		Not rated	
Greenbelt-----------	12	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00

Table 16.--Building Site Development I--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
74A:							
Pavement & buildings, till substratum	70	Not rated		Not rated		Not rated	
Greenbelt	12	Not limited		Not limited		Not limited	
Rock outcrop	10	Not rated		Not rated		Not rated	
75B:							
Pavement & buildings, till substratum	70	Not rated		Not rated		Not rated	
Greenbelt	12	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Rock outcrop	10	Not rated		Not rated		Not rated	
76A:							
Pootatuck	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.88	Depth to saturated zone	1.00	Depth to saturated zone	0.88
77B:							
Pootatuck	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.88	Depth to saturated zone	1.00	Depth to saturated zone	0.88
						Slope	0.12
78A:							
Pootatuck	60	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.88	Depth to saturated zone	1.00	Depth to saturated zone	0.88
Fluventic Hapludolls	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
79A:							
Pootatuck	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.88	Depth to saturated zone	1.00	Depth to saturated zone	0.88
Olinville	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.99		

Table 16.--Building Site Development I--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
80A:							
Pootatuck	43	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.88	Depth to saturated zone	1.00	Depth to saturated zone	0.88
Suncook	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.16		
Olinville	20	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.99		
81A:							
Rikers	75	Not limited		Not limited		Not limited	
82F:							
Rikers	75	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
83G:							
Rock outcrop	70	Not rated		Not rated		Not rated	
Hollis	18	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Chatfield	12	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Depth to hard bedrock	0.86
84A:							
Suncook	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.16		
85A:							
Suncook	77	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.16		
86A:							
Tonawanda	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
87B:							
Tonawanda	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	0.12

Table 16.--Building Site Development I--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
88A:							
Tonawanda, recreational parkland phase-----	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
89B:							
Tonawanda, recreational parkland phase-----	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	0.12
W:							
Water---------------	100	Not rated		Not rated		Not rated	

Table 17.--Building Site Development II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Canandaigua	65	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
Tonawanda	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
2A:							
Centralpark	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.69	Large stones	0.69	Droughty	0.23
		Frost action	0.50	Cutbanks cave	0.10		
3B:							
Centralpark	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.69	Large stones	0.69	Droughty	0.23
		Frost action	0.50	Cutbanks cave	0.10		
4F:							
Centralpark	78	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Large stones	0.69	Large stones	0.69	Droughty	0.23
		Frost action	0.50	Cutbanks cave	0.10		
5D:							
Centralpark	60	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Large stones	0.69	Large stones	0.69	Droughty	0.23
		Frost action	0.50	Cutbanks cave	0.10		
Greenbelt	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	0.10		
6A:							
Centralpark	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.69	Large stones	0.69	Droughty	0.23
		Frost action	0.50	Cutbanks cave	0.10		
Greenbelt	23	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
7B:							
Centralpark	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.69	Large stones	0.69	Droughty	0.23
		Frost action	0.50	Cutbanks cave	0.10		
Greenbelt	23	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Rock outcrop	15	Not rated		Not rated		Not rated	
8C:							
Centralpark	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.69	Large stones	0.69	Slope	0.37
		Frost action	0.50	Slope	0.37	Droughty	0.23
		Slope	0.37	Cutbanks cave	0.10		
Greenbelt	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		
Rock outcrop	15	Not rated		Not rated		Not rated	
9D:							
Centralpark	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Large stones	0.69	Large stones	0.69	Droughty	0.23
		Frost action	0.50	Cutbanks cave	0.10		
Greenbelt	25	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	0.10		
Rock outcrop	15	Not rated		Not rated		Not rated	
10D:							
Charlton	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	0.10		
11C:							
Charlton	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		
Chatfield	40	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Depth to bedrock	0.86
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		
12C:							
Charlton	43	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
Chatfield-----------	38	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Depth to bedrock	0.86
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		
Rock outcrop--------	18	Not rated		Not rated		Not rated	
13C:							
Chatfield, recreational parkland phase-----	61	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.97	Depth to hard bedrock	1.00	Depth to bedrock	0.97
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10	Droughty	0.32
Greenbelt-----------	22	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		
Hollis, recreational parkland phase-----	15	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	1.00	Slope	0.37	Droughty	1.00
		Slope	0.37	Cutbanks cave	0.10	Slope	0.37
						Large stones	0.01
14D:							
Chatfield-----------	56	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.86	Too steep	1.00	Depth to bedrock	0.86
		Frost action	0.50	Cutbanks cave	0.10		
Charlton------------	34	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	0.10		
15E:							
Chatfield-----------	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.86	Too steep	1.00	Depth to bedrock	0.86
		Frost action	0.50	Cutbanks cave	0.10		
Charlton------------	31	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	0.10		
16B:							
Charlton------------	45	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
Chatfield-----------	28	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Depth to bedrock	0.86
		Frost action	0.50	Cutbanks cave	0.10		
Hollis--------------	24	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	1.00	Cutbanks cave	0.10	Droughty	1.00
17B:							
Chatfield-----------	38	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Depth to bedrock	0.86
		Frost action	0.50	Cutbanks cave	0.10		
Hollis--------------	27	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	1.00	Cutbanks cave	0.10	Droughty	1.00
Rock outcrop--------	19	Not rated		Not rated		Not rated	
Charlton------------	15	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
18C:							
Chatfield, recreational parkland phase-----	45	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.97	Depth to hard bedrock	1.00	Depth to bedrock	0.97
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10	Droughty	0.32
Greenbelt-----------	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		
Rock outcrop--------	13	Not rated		Not rated		Not rated	
19B:							
Chatfield, recreational parkland phase-----	66	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.97	Depth to hard bedrock	1.00	Depth to bedrock	0.97
		Frost action	0.50	Cutbanks cave	0.10	Droughty	0.32
Hollis, recreational parkland phase-----	19	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	1.00	Cutbanks cave	0.10	Droughty	1.00
						Large stones	0.01
Greenbelt-----------	13	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
20B:							
Chatfield, recreational parkland phase	52	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.97	Depth to hard bedrock	1.00	Depth to bedrock	0.97
		Frost action	0.50	Cutbanks cave	0.10	Droughty	0.32
Hollis, recreational parkland phase	28	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	1.00	Cutbanks cave	0.10	Droughty	1.00
						Large stones	0.01
Rock outcrop	16	Not rated		Not rated		Not rated	
21D:							
Chatfield	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.86	Too steep	1.00	Depth to bedrock	0.86
		Frost action	0.50	Cutbanks cave	0.10		
Hollis	23	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	1.00	Cutbanks cave	0.10	Droughty	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
22F:							
Chatfield	53	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.86	Too steep	1.00	Depth to bedrock	0.86
		Frost action	0.50	Cutbanks cave	0.10		
Hollis	25	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	1.00	Cutbanks cave	0.10	Droughty	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
23A:							
Fluvaquentic Endoaquolls	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	0.10		

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
24A:							
Fluventic Hapludolls	75	Very limited		Very limited		Very limited	
		Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80		
		Low strength	1.00	Cutbanks cave	0.10		
		Depth to saturated zone	0.19				
25A:							
Fluventic Hapludolls	50	Very limited		Very limited		Very limited	
		Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80		
		Low strength	1.00	Cutbanks cave	0.10		
		Depth to saturated zone	0.19				
26A:							
Greenbelt-----------	78	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
27B:							
Greenbelt-----------	78	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
28C:							
Greenbelt-----------	78	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		
29D:							
Greenbelt-----------	78	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	0.10		
30E:							
Greenbelt-----------	78	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	0.10		
31F:							
Greenbelt-----------	78	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	0.10		
32A:							
Greenbelt-----------	55	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Centralpark---------	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.69	Large stones	0.69	Droughty	0.23
		Frost action	0.50	Cutbanks cave	0.10		
33B:							
Greenbelt-----------	55	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
Centralpark---------	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones	0.69	Large stones	0.69	Droughty	0.23
		Frost action	0.50	Cutbanks cave	0.10		
34F:							
Greenbelt-----------	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	0.10		
Laguardia-----------	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	1.00		
35A:							
Greenbelt, cemetery, deep water table phase--------------	53	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
				Depth to saturated zone	0.94		
Pavement & buildings, till substratum---------	30	Not rated		Not rated		Not rated	
36A:							
Greenbelt, cemetery, very deep water table phase--------	60	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
				Depth to saturated zone	0.03		
Pavement & buildings, till substratum---------	35	Not rated		Not rated		Not rated	
37B:							
Greenbelt, cemetery, very deep water table phase--------	70	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
				Depth to saturated zone	0.03		
Pavement & buildings, till substratum---------	25	Not rated		Not rated		Not rated	
38C:							
Greenbelt, cemetery, very deep water table phase--------	61	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		
				Depth to saturated zone	0.03		

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
Pavement & buildings, till substratum	33	Not rated		Not rated		Not rated	
39D:							
Greenbelt, cemetery, very deep water table phase	66	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	0.10		
				Depth to saturated zone	0.03		
Pavement & buildings, till substratum	27	Not rated		Not rated		Not rated	
40E:							
Greenbelt, cemetery, very deep water table phase	70	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	0.10		
				Depth to saturated zone	0.03		
Pavement & buildings, till substratum	22	Not rated		Not rated		Not rated	
41F:							
Centralpark, very rubbly phase	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Large stones	0.69	Large stones	0.69	Droughty	0.23
		Frost action	0.50	Cutbanks cave	0.10		
42G:							
Centralpark, very rubbly phase	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Large stones	0.69	Large stones	0.69	Droughty	0.23
		Frost action	0.50	Cutbanks cave	0.10		
43F:							
Centralpark, very rubbly phase	40	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Large stones	0.69	Large stones	0.69	Droughty	0.23
		Frost action	0.50	Cutbanks cave	0.10		
44G:							
Centralpark, very rubbly phase	40	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Large stones	0.69	Large stones	0.69	Droughty	0.23
		Frost action	0.50	Cutbanks cave	0.10		

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
45A:							
Holderton-----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
46A:							
Holderton-----------	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	0.10		
Fluvaquentic Endoaquolls--------	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	0.10		
47A:							
Holderton-----------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
Olinville-----------	40	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.99	Flooding	0.60
		Frost action	0.50	Flooding	0.60		
				Cutbanks cave	0.10		
48A:							
Laguardia, very stony phase--------	80	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
49B:							
Laguardia, very stony phase--------	80	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
50C:							
Laguardia, very stony phase--------	80	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Cutbanks cave	1.00	Slope	0.16
		Slope	0.16	Slope	0.16		
51A:							
Laguardia-----------	80	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
52B:							
Laguardia-----------	80	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
53C:							
Laguardia-----------	80	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Cutbanks cave	1.00	Slope	0.37
		Slope	0.37	Slope	0.37		
54D:							
Laguardia-----------	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	1.00		
55E:							
Laguardia-----------	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	1.00		
56F:							
Laguardia-----------	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	1.00		
57A:							
Laguardia-----------	50	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
Greenbelt-----------	30	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
58B:							
Laguardia-----------	50	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
Greenbelt-----------	30	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
59A:							
Limerick------------	80	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
60A:							
Natchaug------------	85	Very limited		Very limited		Not rated	
		Ponding	1.00	Ponding	1.00		
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Frost action	1.00	Organic matter content	1.00		
				Cutbanks cave	0.10		

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
61A:							
Olinville-----------	80	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.99	Flooding	0.60
		Frost action	0.50	Flooding	0.60		
				Cutbanks cave	0.10		
62A:							
Pavement & buildings, tidal marsh substratum---	92	Not rated		Not rated		Not rated	
63A:							
Pavement & buildings, till substratum---------	92	Not rated		Not rated		Not rated	
64B:							
Pavement & buildings, till substratum---------	92	Not rated		Not rated		Not rated	
65C:							
Pavement & buildings, till substratum---------	92	Not rated		Not rated		Not rated	
66A:							
Pavement & buildings, alluvium substratum---------	92	Not rated		Not rated		Not rated	
67A:							
Pavement & buildings, till substratum---------	55	Not rated		Not rated		Not rated	
Greenbelt-----------	38	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
68B:							
Pavement & buildings, till substratum---------	55	Not rated		Not rated		Not rated	
Greenbelt-----------	38	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
69C:							
Pavement & buildings, till substratum---------	55	Not rated		Not rated		Not rated	
Greenbelt-----------	38	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
70A:							
Pavement & buildings, till substratum	80	Not rated		Not rated		Not rated	
Greenbelt	12	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
71B:							
Pavement & buildings, till substratum	80	Not rated		Not rated		Not rated	
Greenbelt	12	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
72C:							
Pavement & buildings, till substratum	80	Not rated		Not rated		Not rated	
Greenbelt	12	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		
73D:							
Pavement & buildings, till substratum	80	Not rated		Not rated		Not rated	
Greenbelt	12	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Cutbanks cave	0.10		
74A:							
Pavement & buildings, till substratum	70	Not rated		Not rated		Not rated	
Greenbelt	12	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Rock outcrop	10	Not rated		Not rated		Not rated	
75B:							
Pavement & buildings, till substratum	70	Not rated		Not rated		Not rated	
Greenbelt	12	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Rock outcrop	10	Not rated		Not rated		Not rated	

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
76A:							
Pootatuck-----------	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Depth to saturated zone	0.56	Flooding	0.60		
		Frost action	0.50	Cutbanks cave	0.10		
77B:							
Pootatuck-----------	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Depth to saturated zone	0.56	Flooding	0.60		
		Frost action	0.50	Cutbanks cave	0.10		
78A:							
Pootatuck-----------	60	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Depth to saturated zone	0.56	Flooding	0.60		
		Frost action	0.50	Cutbanks cave	0.10		
Fluventic Hapludolls	30	Very limited		Very limited		Very limited	
		Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80		
		Low strength	1.00	Cutbanks cave	0.10		
		Depth to saturated zone	0.19				
79A:							
Pootatuck-----------	55	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Depth to saturated zone	0.56	Flooding	0.60		
		Frost action	0.50	Cutbanks cave	0.10		
Olinville-----------	35	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.99	Flooding	0.60
		Frost action	0.50	Flooding	0.60		
				Cutbanks cave	0.10		
80A:							
Pootatuck-----------	43	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Depth to saturated zone	0.56	Flooding	0.60		
		Frost action	0.50	Cutbanks cave	0.10		

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
Suncook-------------	30	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
				Depth to saturated zone	0.16		
Olinville-----------	20	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.99	Flooding	0.60
		Frost action	0.50	Flooding	0.60		
				Cutbanks cave	0.10		
81A:							
Rikers--------------	75	Not limited		Very limited		Very limited	
				Cutbanks cave	1.00	Too sandy	1.00
						Droughty	0.66
						Gravel	0.11
82F:							
Rikers--------------	75	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
				Cutbanks cave	1.00	Too sandy	1.00
						Droughty	0.66
						Gravel	0.11
83G:							
Rock outcrop--------	70	Not rated		Not rated		Not rated	
Hollis--------------	18	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	1.00	Cutbanks cave	0.10	Droughty	1.00
Chatfield-----------	12	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.86	Too steep	1.00	Depth to bedrock	0.86
		Frost action	0.50	Cutbanks cave	0.10		
84A:							
Suncook-------------	80	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
				Depth to saturated zone	0.16		
85A:							
Suncook-------------	77	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
				Depth to saturated zone	0.16		

Table 17.--Building Site Development II--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
86A:							
Tonawanda-----------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
87B:							
Tonawanda-----------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
88A:							
Tonawanda, recreational parkland phase-----	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
89B:							
Tonawanda, recreational parkland phase-----	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
w:							
Water---------------	100	Not rated		Not rated		Not rated	

Tables 18. and 19.--Construction Materials

Tables 18 and 19 give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 18, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated good, fair, or poor as potential sources of sand and gravel. A rating of good or fair means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

The soils are rated good, fair, or poor as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

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

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

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

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Table 18.--Construction Materials I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
1A:					
Canandaigua	65	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Tonawanda	20	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.02
2A:					
Centralpark	85	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00
3B:					
Centralpark	85	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00
4F:					
Centralpark	78	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00
5D:					
Centralpark	60	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00
Greenbelt	30	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
6A:					
Centralpark	55	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00
Greenbelt	23	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
Rock outcrop	15	Not rated		Not rated	
7B:					
Centralpark	55	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00

Table 18.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
Greenbelt-----------	23	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
Rock outcrop--------	15	Not rated		Not rated	
8C:					
Centralpark---------	55	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00
Greenbelt-----------	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
Rock outcrop--------	15	Not rated		Not rated	
9D:					
Centralpark---------	55	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00
Greenbelt-----------	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
Rock outcrop--------	15	Not rated		Not rated	
10D:					
Charlton------------	85	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
11C:					
Charlton------------	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Chatfield-----------	40	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
12C:					
Charlton------------	43	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Chatfield-----------	38	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Rock outcrop--------	18	Not rated		Not rated	

Table 18.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
13C:					
Chatfield, recreational parkland phase	61	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Greenbelt	22	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
Hollis, recreational parkland phase	15	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
14D:					
Chatfield	56	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Charlton	34	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
15E:					
Chatfield	55	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Charlton	31	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
16B:					
Charlton	45	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Chatfield	28	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Hollis	24	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
17B:					
Chatfield	38	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Hollis	27	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Rock outcrop	19	Not rated		Not rated	

Table 18.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Charlton------------	15	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
18C:					
Chatfield, recreational parkland phase-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Greenbelt-----------	40	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
Rock outcrop--------	13	Not rated		Not rated	
19B:					
Chatfield, recreational parkland phase-----	66	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Hollis, recreational parkland phase-----	19	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
Greenbelt-----------	13	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
20B:					
Chatfield, recreational parkland phase-----	52	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Hollis, recreational parkland phase-----	28	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
Rock outcrop--------	16	Not rated		Not rated	
21D:					
Chatfield-----------	55	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Hollis--------------	23	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 18.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
Rock outcrop	15	Not rated		Not rated	
22F:					
Chatfield	53	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Hollis	25	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Rock outcrop	20	Not rated		Not rated	
23A:					
Fluvaquentic Endoaquolls	75	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02
24A:					
Fluventic Hapludolls	75	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
25A:					
Fluventic Hapludolls	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
26A:					
Greenbelt	78	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
27B:					
Greenbelt	78	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
28C:					
Greenbelt	78	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
29D:					
Greenbelt	78	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
30E:					
Greenbelt	78	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02

Table 18.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
31F:					
Greenbelt	78	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
32A:					
Greenbelt	55	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
Centralpark	35	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00
33B:					
Greenbelt	55	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
Centralpark	35	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00
34F:					
Greenbelt	55	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
Laguardia	30	Poor		Fair	
		Thickest layer	0.04	Bottom layer	0.03
		Bottom layer	0.09	Thickest layer	0.04
35A:					
Greenbelt, cemetery, deep water table phase	53	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.04
Pavement & buildings, till substratum	30	Not rated		Not rated	
36A:					
Greenbelt, cemetery, very deep water table phase	60	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.02
Pavement & buildings, till substratum	35	Not rated		Not rated	

Table 18.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
37B:					
Greenbelt, cemetery, very deep water table phase--------	70	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.02
Pavement & buildings, till substratum---------	25	Not rated		Not rated	
38C:					
Greenbelt, cemetery, very deep water table phase--------	61	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.02
Pavement & buildings, till substratum---------	33	Not rated		Not rated	
39D:					
Greenbelt, cemetery, very deep water table phase--------	66	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.02
Pavement & buildings, till substratum---------	27	Not rated		Not rated	
40E:					
Greenbelt, cemetery, very deep water table phase--------	70	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.02
Pavement & buildings, till substratum---------	22	Not rated		Not rated	
41F:					
Centralpark, very rubbly phase-------	80	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00
42G:					
Centralpark, very rubbly phase-------	80	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00

Table 18.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
43F:					
Centralpark, very rubbly phase-------	40	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00
44G:					
Centralpark, very rubbly phase-------	40	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.50	Bottom layer	0.00
45A:					
Holderton-----------	85	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
46A:					
Holderton-----------	55	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Fluvaquentic Endoaquolls--------	35	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02
47A:					
Holderton-----------	45	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Olinville-----------	40	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
48A:					
Laguardia, very stony phase--------	80	Poor		Fair	
		Thickest layer	0.04	Bottom layer	0.03
		Bottom layer	0.09	Thickest layer	0.04
49B:					
Laguardia, very stony phase--------	80	Poor		Fair	
		Thickest layer	0.04	Bottom layer	0.03
		Bottom layer	0.09	Thickest layer	0.04
50C:					
Laguardia, very stony phase--------	80	Poor		Fair	
		Thickest layer	0.04	Bottom layer	0.03
		Bottom layer	0.09	Thickest layer	0.04
51A:					
Laguardia-----------	80	Poor		Fair	
		Thickest layer	0.04	Bottom layer	0.03
		Bottom layer	0.09	Thickest layer	0.04

Table 18.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
52B:					
Laguardia	80	Poor		Fair	
		Thickest layer	0.04	Bottom layer	0.03
		Bottom layer	0.09	Thickest layer	0.04
53C:					
Laguardia	80	Poor		Fair	
		Thickest layer	0.04	Bottom layer	0.03
		Bottom layer	0.09	Thickest layer	0.04
54D:					
Laguardia	80	Poor		Fair	
		Thickest layer	0.04	Bottom layer	0.03
		Bottom layer	0.09	Thickest layer	0.04
55E:					
Laguardia	80	Poor		Fair	
		Thickest layer	0.04	Bottom layer	0.03
		Bottom layer	0.09	Thickest layer	0.04
56F:					
Laguardia	80	Poor		Fair	
		Thickest layer	0.04	Bottom layer	0.03
		Bottom layer	0.09	Thickest layer	0.04
57A:					
Laguardia	50	Poor		Fair	
		Thickest layer	0.04	Bottom layer	0.03
		Bottom layer	0.09	Thickest layer	0.04
Greenbelt	30	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
58B:					
Laguardia	50	Poor		Fair	
		Thickest layer	0.04	Bottom layer	0.03
		Bottom layer	0.09	Thickest layer	0.04
Greenbelt	30	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
59A:					
Limerick	80	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
60A:					
Natchaug	85	Not rated		Not rated	
61A:					
Olinville	80	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00

Table 18.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
62A:					
Pavement & buildings, tidal marsh substratum---	92	Not rated		Not rated	
63A:					
Pavement & buildings, till substratum---------	92	Not rated		Not rated	
64B:					
Pavement & buildings, till substratum---------	92	Not rated		Not rated	
65C:					
Pavement & buildings, till substratum---------	92	Not rated		Not rated	
66A:					
Pavement & buildings, alluvium substratum---------	92	Not rated		Not rated	
67A:					
Pavement & buildings, till substratum---------	55	Not rated		Not rated	
Greenbelt-----------	38	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
68B:					
Pavement & buildings, till substratum---------	55	Not rated		Not rated	
Greenbelt-----------	38	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
69C:					
Pavement & buildings, till substratum---------	55	Not rated		Not rated	
Greenbelt-----------	38	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02

Table 18.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
70A:					
Pavement & buildings, till substratum	80	Not rated		Not rated	
Greenbelt	12	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
71B:					
Pavement & buildings, till substratum	80	Not rated		Not rated	
Greenbelt	12	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
72C:					
Pavement & buildings, till substratum	80	Not rated		Not rated	
Greenbelt	12	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
73D:					
Pavement & buildings, till substratum	80	Not rated		Not rated	
Greenbelt	12	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
74A:					
Pavement & buildings, till substratum	70	Not rated		Not rated	
Greenbelt	12	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
Rock outcrop	10	Not rated		Not rated	
75B:					
Pavement & buildings, till substratum	70	Not rated		Not rated	

Table 18.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
Greenbelt-----------	12	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.06	Thickest layer	0.02
Rock outcrop--------	10	Not rated		Not rated	
76A:					
Pootatuck-----------	85	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.03
		Bottom layer	0.00	Thickest layer	0.04
77B:					
Pootatuck-----------	85	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.03
		Bottom layer	0.00	Thickest layer	0.04
78A:					
Pootatuck-----------	60	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.03
		Bottom layer	0.00	Thickest layer	0.04
Fluventic Hapludolls	30	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
79A:					
Pootatuck-----------	55	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.03
		Bottom layer	0.00	Thickest layer	0.04
Olinville-----------	35	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
80A:					
Pootatuck-----------	43	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.03
		Bottom layer	0.00	Thickest layer	0.04
Suncook-------------	30	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.08
		Bottom layer	0.00	Bottom layer	0.08
Olinville-----------	20	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
81A:					
Rikers--------------	75	Good		Fair	
		Thickest layer	0.40	Thickest layer	0.63
		Bottom layer	0.71	Bottom layer	0.65
82F:					
Rikers--------------	75	Good		Fair	
		Thickest layer	0.40	Thickest layer	0.63
		Bottom layer	0.71	Bottom layer	0.65

Table 18.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
83G:					
Rock outcrop--------	70	Not rated		Not rated	
Hollis--------------	18	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Chatfield-----------	12	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
84A:					
Suncook-------------	80	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.08
		Bottom layer	0.00	Bottom layer	0.08
85A:					
Suncook-------------	77	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.08
		Bottom layer	0.00	Bottom layer	0.08
86A:					
Tonawanda-----------	80	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.02
87B:					
Tonawanda-----------	80	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.02
88A:					
Tonawanda, recreational parkland phase-----	65	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.02
89B:					
Tonawanda, recreational parkland phase-----	70	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.02
W:					
Water---------------	100	Not rated		Not rated	

Table 19.--Construction Materials II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
1A:					
Canandaigua	65	Poor		Poor	
		Wetness depth	0.00	Wetness depth	0.00
		Low strength	0.00	Too acid	0.88
Tonawanda	20	Poor		Poor	
		Wetness depth	0.00	Wetness depth	0.00
				Too acid	0.76
2A:					
Centralpark	85	Fair		Poor	
		Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.41	Rock fragments	0.00
				Too acid	0.88
3B:					
Centralpark	85	Fair		Poor	
		Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.41	Rock fragments	0.00
				Too acid	0.88
4F:					
Centralpark	78	Poor		Poor	
		Slope	0.00	Slope	0.00
		Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.41	Rock fragments	0.00
				Too acid	0.88
5D:					
Centralpark	60	Fair		Poor	
		Stones	0.02	Slope	0.00
		Cobble content	0.41	Hard to reclaim (rock fragments)	0.00
		Slope	0.50	Rock fragments	0.00
				Too acid	0.88
Greenbelt	30	Fair		Poor	
		Slope	0.50	Slope	0.00
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
6A:					
Centralpark	55	Fair		Poor	
		Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.41	Rock fragments	0.00
				Too acid	0.88

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Greenbelt-----------	23	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
Rock outcrop--------	15	Not rated		Not rated	
7B:					
Centralpark---------	55	Fair		Poor	
		Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.41	Rock fragments	0.00
				Too acid	0.88
Greenbelt-----------	23	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
Rock outcrop--------	15	Not rated		Not rated	
8C:					
Centralpark---------	55	Fair		Poor	
		Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.41	Rock fragments	0.00
				Slope	0.63
				Too acid	0.88
Greenbelt-----------	25	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
				Slope	0.63
Rock outcrop--------	15	Not rated		Not rated	
9D:					
Centralpark---------	55	Fair		Poor	
		Stones	0.02	Slope	0.00
		Cobble content	0.41	Hard to reclaim (rock fragments)	0.00
		Slope	0.50	Rock fragments	0.00
				Too acid	0.88
Greenbelt-----------	25	Fair		Poor	
		Slope	0.50	Slope	0.00
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
Rock outcrop--------	15	Not rated		Not rated	

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
10D:					
Charlton	85	Fair		Poor	
		Slope	0.50	Slope	0.00
		Stones	0.68	Too acid	0.82
				Hard to reclaim (rock fragments)	0.95
				Rock fragments	0.99
11C:					
Charlton	50	Fair		Fair	
		Stones	0.68	Slope	0.63
				Too acid	0.82
				Hard to reclaim (rock fragments)	0.95
				Rock fragments	0.99
Chatfield	40	Poor		Fair	
		Depth to bedrock	0.00	Depth to bedrock	0.14
				Slope	0.63
				Rock fragments	0.98
				Too acid	0.98
12C:					
Charlton	43	Fair		Fair	
		Stones	0.68	Slope	0.63
				Too acid	0.82
				Hard to reclaim (rock fragments)	0.95
				Rock fragments	0.99
Chatfield	38	Poor		Fair	
		Depth to bedrock	0.00	Depth to bedrock	0.14
				Slope	0.63
				Rock fragments	0.98
				Too acid	0.98
Rock outcrop	18	Not rated		Not rated	
13C:					
Chatfield, recreational parkland phase	61	Poor		Fair	
		Depth to bedrock	0.00	Depth to bedrock	0.03
				Slope	0.63
				Rock fragments	0.95
Greenbelt	22	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
				Slope	0.63

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Hollis, recreational parkland phase-----	15	Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00
				Slope	0.63
				Rock fragments	0.76
				Too acid	0.92
				Too sandy	0.98
14D:					
Chatfield-----------	56	Poor		Poor	
		Depth to bedrock	0.00	Slope	0.00
		Slope	0.50	Depth to bedrock	0.14
				Rock fragments	0.98
				Too acid	0.98
Charlton------------	34	Fair		Poor	
		Slope	0.50	Slope	0.00
		Stones	0.68	Too acid	0.82
				Hard to reclaim (rock fragments)	0.95
				Rock fragments	0.99
15E:					
Chatfield-----------	55	Poor		Poor	
		Slope	0.00	Slope	0.00
		Depth to bedrock	0.00	Depth to bedrock	0.14
				Rock fragments	0.98
				Too acid	0.98
Charlton------------	31	Poor		Poor	
		Slope	0.00	Slope	0.00
		Stones	0.68	Too acid	0.82
				Hard to reclaim (rock fragments)	0.95
				Rock fragments	0.99
16B:					
Charlton------------	45	Fair		Fair	
		Stones	0.68	Too acid	0.82
				Hard to reclaim (rock fragments)	0.95
				Rock fragments	0.99
Chatfield-----------	28	Poor		Fair	
		Depth to bedrock	0.00	Depth to bedrock	0.14
				Rock fragments	0.98
				Too acid	0.98
Hollis--------------	24	Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00
		Stones	0.28	Rock fragments	0.89
				Too acid	0.98
17B:					
Chatfield-----------	38	Poor		Fair	
		Depth to bedrock	0.00	Depth to bedrock	0.14
				Rock fragments	0.98
				Too acid	0.98

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Hollis--------------	27	Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00
		Stones	0.28	Rock fragments	0.89
				Too acid	0.98
Rock outcrop--------	19	Not rated		Not rated	
Charlton------------	15	Fair		Fair	
		Stones	0.68	Too acid	0.82
				Hard to reclaim (rock fragments)	0.95
				Rock fragments	0.99
18C:					
Chatfield, recreational parkland phase-----	45	Poor		Fair	
		Depth to bedrock	0.00	Depth to bedrock	0.03
				Slope	0.63
				Rock fragments	0.95
Greenbelt-----------	40	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
				Slope	0.63
Rock outcrop--------	13	Not rated		Not rated	
19B:					
Chatfield, recreational parkland phase-----	66	Poor		Fair	
		Depth to bedrock	0.00	Depth to bedrock	0.03
				Rock fragments	0.95
Hollis, recreational parkland phase-----	19	Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00
				Too acid	0.92
				Rock fragments	0.99
Greenbelt-----------	13	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
20B:					
Chatfield, recreational parkland phase-----	52	Poor		Fair	
		Depth to bedrock	0.00	Depth to bedrock	0.03
				Rock fragments	0.95

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Hollis, recreational parkland phase-----	28	Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00
				Too acid	0.92
				Rock fragments	0.99
Rock outcrop--------	16	Not rated		Not rated	
21D:					
Chatfield-----------	55	Poor		Poor	
		Depth to bedrock	0.00	Slope	0.00
		Slope	0.50	Depth to bedrock	0.14
				Rock fragments	0.98
				Too acid	0.98
Hollis--------------	23	Poor		Poor	
		Depth to bedrock	0.00	Slope	0.00
		Stones	0.28	Depth to bedrock	0.00
		Slope	0.50	Rock fragments	0.89
				Too acid	0.98
Rock outcrop--------	15	Not rated		Not rated	
22F:					
Chatfield-----------	53	Poor		Poor	
		Slope	0.00	Slope	0.00
		Depth to bedrock	0.00	Depth to bedrock	0.14
				Rock fragments	0.98
				Too acid	0.98
Hollis--------------	25	Poor		Poor	
		Depth to bedrock	0.00	Slope	0.00
		Slope	0.00	Depth to bedrock	0.00
		Stones	0.28	Rock fragments	0.89
				Too acid	0.98
Rock outcrop--------	20	Not rated		Not rated	
23A:					
Fluvaquentic Endoaquolls--------	75	Poor		Poor	
		Wetness depth	0.00	Wetness depth	0.00
24A:					
Fluventic Hapludolls	75	Poor		Fair	
		Low strength	0.00	Wetness depth	0.53
		Wetness depth	0.53		
25A:					
Fluventic Hapludolls	50	Poor		Fair	
		Low strength	0.00	Wetness depth	0.53
		Wetness depth	0.53		

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
26A:					
Greenbelt-----------	78	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
27B:					
Greenbelt-----------	78	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
28C:					
Greenbelt-----------	78	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
				Slope	0.63
29D:					
Greenbelt-----------	78	Fair		Poor	
		Slope	0.50	Slope	0.00
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
30E:					
Greenbelt-----------	78	Poor		Poor	
		Slope	0.00	Slope	0.00
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
31F:					
Greenbelt-----------	78	Poor		Poor	
		Slope	0.00	Slope	0.00
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
32A:					
Greenbelt-----------	55	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
Centralpark---------	35	Fair		Poor	
		Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.41	Rock fragments	0.00
				Too acid	0.88
33B:					
Greenbelt-----------	55	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Centralpark	35	Fair		Poor	
		Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.41	Rock fragments	0.00
				Too acid	0.88
34F:					
Greenbelt	55	Poor		Poor	
		Slope	0.00	Slope	0.00
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
Laguardia	30	Poor		Poor	
		Slope	0.00	Slope	0.00
		Cobble content	0.96	Rock fragments	0.00
				Too sandy	0.66
35A:					
Greenbelt, cemetery, deep water table phase	53	Good		Fair	
				Too acid	0.95
Pavement & buildings, till substratum	30	Good		Not rated	
36A:					
Greenbelt, cemetery, very deep water table phase	60	Good		Fair	
				Too acid	0.95
Pavement & buildings, till substratum	35	Good		Not rated	
37B:					
Greenbelt, cemetery, very deep water table phase	70	Good		Fair	
				Too acid	0.95
Pavement & buildings, till substratum	25	Good		Not rated	
38C:					
Greenbelt, cemetery, very deep water table phase	61	Good		Fair	
				Slope	0.63
				Too acid	0.95

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Pavement & buildings, till substratum---------	33	Good		Not rated	
39D:					
Greenbelt, cemetery, very deep water table phase--------	66	Fair		Poor	
		Slope	0.50	Slope	0.00
				Too acid	0.95
Pavement & buildings, till substratum---------	27	Good		Not rated	
40E:					
Greenbelt, cemetery, very deep water table phase--------	70	Poor		Poor	
		Slope	0.00	Slope	0.00
				Too acid	0.95
Pavement & buildings, till substratum---------	22	Good		Not rated	
41F:					
Centralpark, very rubbly phase-------	80	Poor		Poor	
		Slope	0.00	Slope	0.00
		Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.41	Rock fragments	0.00
				Too acid	0.88
42G:					
Centralpark, very rubbly phase-------	80	Poor		Poor	
		Slope	0.00	Slope	0.00
		Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.41	Rock fragments	0.00
				Too acid	0.88
43F:					
Centralpark, very rubbly phase-------	40	Poor		Poor	
		Slope	0.00	Slope	0.00
		Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.41	Rock fragments	0.00
				Too acid	0.88

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
44G:					
Centralpark, very rubbly phase	40	Poor		Poor	
		Slope	0.00	Slope	0.00
		Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.41	Rock fragments	0.00
				Too acid	0.88
45A:					
Holderton	85	Poor		Poor	
		Wetness depth	0.00	Wetness depth	0.00
46A:					
Holderton	55	Poor		Poor	
		Wetness depth	0.00	Wetness depth	0.00
Fluvaquentic Endoaquolls	35	Poor		Poor	
		Wetness depth	0.00	Wetness depth	0.00
47A:					
Holderton	45	Poor		Poor	
		Wetness depth	0.00	Wetness depth	0.00
Olinville	40	Fair		Fair	
		Wetness depth	0.98	Wetness depth	0.98
48A:					
Laguardia, very stony phase	80	Fair		Poor	
		Cobble content	0.96	Rock fragments	0.00
				Too sandy	0.66
49B:					
Laguardia, very stony phase	80	Fair		Poor	
		Cobble content	0.96	Rock fragments	0.00
				Too sandy	0.66
50C:					
Laguardia, very stony phase	80	Fair		Poor	
		Cobble content	0.96	Rock fragments	0.00
				Too sandy	0.66
				Slope	0.84
51A:					
Laguardia	80	Fair		Poor	
		Cobble content	0.96	Rock fragments	0.00
				Too sandy	0.66
52B:					
Laguardia	80	Fair		Poor	
		Cobble content	0.96	Rock fragments	0.00
				Too sandy	0.66

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
53C:					
Laguardia-----------	80	Fair		Poor	
		Cobble content	0.96	Rock fragments	0.00
				Slope	0.63
				Too sandy	0.66
54D:					
Laguardia-----------	80	Fair		Poor	
		Slope	0.50	Slope	0.00
		Cobble content	0.96	Rock fragments	0.00
				Too sandy	0.66
55E:					
Laguardia-----------	80	Poor		Poor	
		Slope	0.00	Slope	0.00
		Cobble content	0.96	Rock fragments	0.00
				Too sandy	0.66
56F:					
Laguardia-----------	80	Poor		Poor	
		Slope	0.00	Slope	0.00
		Cobble content	0.96	Rock fragments	0.00
				Too sandy	0.66
57A:					
Laguardia-----------	50	Fair		Poor	
		Cobble content	0.96	Rock fragments	0.00
				Too sandy	0.66
Greenbelt-----------	30	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
58B:					
Laguardia-----------	50	Fair		Poor	
		Cobble content	0.96	Rock fragments	0.00
				Too sandy	0.66
Greenbelt-----------	30	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
59A:					
Limerick------------	80	Poor		Poor	
		Wetness depth	0.00	Wetness depth	0.00
				Too acid	0.95
60A:					
Natchaug------------	85	Poor		Not rated	
		Wetness depth	0.00		
61A:					
Olinville-----------	80	Fair		Fair	
		Wetness depth	0.98	Wetness depth	0.98

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
62A:					
Pavement & buildings, tidal marsh substratum	92	Good		Not rated	
63A:					
Pavement & buildings, till substratum	92	Good		Not rated	
64B:					
Pavement & buildings, till substratum	92	Good		Not rated	
65C:					
Pavement & buildings, till substratum	92	Good		Not rated	
66A:					
Pavement & buildings, alluvium substratum	92	Good		Not rated	
67A:					
Pavement & buildings, till substratum	55	Good		Not rated	
Greenbelt	38	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
68B:					
Pavement & buildings, till substratum	55	Good		Not rated	
Greenbelt	38	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
69C:					
Pavement & buildings, till substratum	55	Good		Not rated	

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Greenbelt-----------	38	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
				Slope	0.63
70A:					
Pavement & buildings, till substratum---------	80	Good		Not rated	
Greenbelt-----------	12	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
71B:					
Pavement & buildings, till substratum---------	80	Good		Not rated	
Greenbelt-----------	12	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
72C:					
Pavement & buildings, till substratum---------	80	Good		Not rated	
Greenbelt-----------	12	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
				Slope	0.63
73D:					
Pavement & buildings, till substratum---------	80	Fair		Not rated	
		Slope	0.50		
Greenbelt-----------	12	Fair		Poor	
		Slope	0.50	Slope	0.00
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
74A:					
Pavement & buildings, till substratum---------	70	Good		Not rated	

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Greenbelt-----------	12	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
Rock outcrop--------	10	Not rated		Not rated	
75B:					
Pavement & buildings, till substratum---------	70	Good		Not rated	
Greenbelt-----------	12	Fair		Fair	
		Stones	0.97	Hard to reclaim (rock fragments)	0.18
				Rock fragments	0.57
Rock outcrop--------	10	Not rated		Not rated	
76A:					
Pootatuck-----------	85	Fair		Fair	
		Wetness depth	0.24	Wetness depth	0.24
				Too acid	0.95
77B:					
Pootatuck-----------	85	Fair		Fair	
		Wetness depth	0.24	Wetness depth	0.24
				Too acid	0.95
78A:					
Pootatuck-----------	60	Fair		Fair	
		Wetness depth	0.24	Wetness depth	0.24
				Too acid	0.95
Fluventic Hapludolls	30	Poor		Fair	
		Low strength	0.00	Wetness depth	0.53
		Wetness depth	0.53		
79A:					
Pootatuck-----------	55	Fair		Fair	
		Wetness depth	0.24	Wetness depth	0.24
				Too acid	0.95
Olinville-----------	35	Fair		Fair	
		Wetness depth	0.98	Wetness depth	0.98
80A:					
Pootatuck-----------	43	Fair		Fair	
		Wetness depth	0.24	Wetness depth	0.24
				Too acid	0.95
Suncook-------------	30	Good		Fair	
				Too sandy	0.15
				Too acid	0.92

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Olinville-----------	20	Fair		Fair	
		Wetness depth	0.98	Wetness depth	0.98
81A:					
Rikers--------------	75	Good		Poor	
				Too sandy	0.00
				Rock fragments	0.00
				Hard to reclaim (rock fragments)	0.26
82F:					
Rikers--------------	75	Poor		Poor	
		Slope	0.00	Slope	0.00
				Too sandy	0.00
				Rock fragments	0.00
				Hard to reclaim (rock fragments)	0.26
83G:					
Rock outcrop--------	70	Not rated		Not rated	
Hollis--------------	18	Poor		Poor	
		Depth to bedrock	0.00	Slope	0.00
		Slope	0.00	Depth to bedrock	0.00
		Stones	0.28	Rock fragments	0.89
				Too acid	0.98
Chatfield-----------	12	Poor		Poor	
		Slope	0.00	Slope	0.00
		Depth to bedrock	0.00	Depth to bedrock	0.14
				Rock fragments	0.98
				Too acid	0.98
84A:					
Suncook-------------	80	Good		Fair	
				Too sandy	0.15
				Too acid	0.92
85A:					
Suncook-------------	77	Good		Fair	
				Too sandy	0.15
				Too acid	0.92
86A:					
Tonawanda-----------	80	Poor		Poor	
		Wetness depth	0.00	Wetness depth	0.00
				Too acid	0.76
87B:					
Tonawanda-----------	80	Poor		Poor	
		Wetness depth	0.00	Wetness depth	0.00
				Too acid	0.76

Table 19.--Construction Materials II--Continued

Map symbol and soil name	Pct. of map unit	Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value
88A:					
Tonawanda, recreational parkland phase-----	65	Poor		Poor	
		Wetness depth	0.00	Wetness depth	0.00
89B:					
Tonawanda, recreational parkland phase-----	70	Poor		Poor	
		Wetness depth	0.00	Wetness depth	0.00
W:					
Water----------------	100	Not rated		Not rated	

Appendix

Infiltration Study Sites

The following site and pedon descriptions correspond to the Infiltration Study included on page 19, and specifically the respective data reported on page 21.

Site 1: Bronx River Parkway NW of 241st street
Soil Series: Greenbelt, 3 percent slope
Land use: Highway Buffer/High use park
Parent Material: Clean (<10% artifacts) loamy fill

^A1—0 to 3 inches; very dark grayish brown (2.5Y 3/1) loam; moderate medium granular structure; friable; many very fine, common fine, medium, and coarse roots; slightly acid (pH 6.2); abrupt smooth boundary.

^AB—3 to 10 inches; very dark grayish brown (2.5Y 3/2) loam; moderate medium subangular blocky structure; friable; few very fine and fine roots; few coarse prominent dark reddish brown (5YR 3/4) iron concentrations; 4 percent gravel-sized rock fragments; slightly acid (pH 6.2); clear smooth boundary.

^Bwu—10 to 31 inches; dark grayish brown (2.5YR 4/2) loam; weak very thick platy parting to medium subangular blocky structure; firm; few very fine and few fine roots; many coarse prominent yellowish brown (10YR 5/4) iron concentrations; 8 percent gravel-sized rock fragments, 4 percent gravel-sized pottery and metal fragments; slightly acid (pH 6.2); gradual wavy boundary.

^BC—31 to 40 inches; dark yellowish brown (10YR 4/4) sandy loam; weak coarse subangular blocky structure; friable; few fine roots; many coarse prominent very dark grayish brown (2.5Y 3/2) iron depletions and few fine prominent strong brown (7.5YR 5/8) iron concentrations; 16 percent gravel-sized rock fragments; slightly acid (pH 6.2).

No photos available

Site 2: Pelham Parkway, Bronx, NY
Soil Series: Centralpark
Land use: Highway Buffer/High use park
Parent Material: Skeletal (>35% coarse fragments) fill with <10 % artifacts

^A1—0 to 1.5 inches; very dark brown (10YR 2/2) sandy loam; weak medium subangular blocky structure; friable; common very fine roots; moderately acid (pH 5.6); abrupt smooth boundary.

^A2—1.5 to 4.5 inches; very dark grayish brown (10YR 3/2) sandy loam; weak medium subangular blocky structure; friable; common very fine and few fine roots; strongly acid (pH 5.2); clear smooth boundary.

^Bw—4.5 inches to 12 inches; 50 percent dark yellowish brown (10YR 4/4) and 50 percent yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; few very fine and few fine roots; 8 percent gravel-sized rock fragments (predominately schist); strongly acid (pH 5.2); clear smooth boundary

^C—12 to 27 inches; brown (7.5YR 4/4) very flaggy sandy loam; massive; friable; few very fine, fine and medium roots; 15 percent mica flakes; 30 percent channer-sized rock fragments (predominately schist) and 25 percent flagstone-sized rock fragments (predominately schist); very strongly acid (pH 5.0)

Site 2. Centralpark Profile

Site 3: Pelham Pelham Parkway, Bronx, NY
Soil Series: Tonawanda, 0 percent slope
Land use: Highway Buffer/High use park
Parent Material: Fill/ Lacustrine deposits

A—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam; moderate medium granular structure; friable; common very fine, few fine and few coarse roots; 5 percent gravel-sized rock fragments; very strongly acid (pH 5.0); abrupt smooth boundary.

Bw1—5 to 9.5 inches; 70 percent dark grayish brown (10YR 4/2) and 30 percent brownish yellow (10YR 6/8) loam; weak thick platy structure; firm; few very fine, fine and medium roots; 3 percent gravel-sized rock fragments and 3 percent cobble-sized brick fragments; strongly acid (pH 5.5); abrupt smooth boundary.

Bwg2—9.5 to 14 inches; light brownish gray (10YR 6/2) silt loam; weak very coarse subangular blocky structure; firm; few very fine and fine roots; common (10 percent) prominent red (2.5YR 4/8) iron concentrations and common (9 percent) prominent yellowish red (5YR 5/8) iron concentrations; 2 percent gravel-sized and 2 percent cobble-sized rock fragments; strongly acid (pH 5.4); abrupt smooth boundary.

C—14 to 40 inches; 50 percent light brownish gray (2.5Y 6/2), 45 percent brownish yellow (10YR 6/6) cobbly silty clay loam; massive; very firm; few very fine, fine and medium roots; common (5 percent) prominent yellowish red (5YR 4/6) iron concentrations; 15 percent cobble-sized rock fragments; slightly acid (pH 6.3).

Site 3. Tonawanda Profile

Site 3. Pelham Parkway Landscape

Site 4: Bronx Botanical Garden
Soil Series: Charlton loam, 1 percent slope
Land use: Native Forest
Parent Material : Till

Leaf litter--1 to 0 inches.

A1—0 to 1.5 inches; black (10YR 2/1) loam; strong fine and medium granular structure; friable; common fine roots; very strongly acid (pH 5.0); abrupt smooth boundary.

A2—1.5 to 5.5 inches; very dark grayish brown (10YR 3/2) loam; moderate medium granular structure; friable; many fine and medium roots; very strongly acid (pH 5.0); clear smooth boundary.

BA—5.5 to 7.5 inches; 70 percent brown (10YR 4/3) and 30 percent dark brown (10YR 3/3) loam; moderate medium and coarse subangular blocky structure; friable; common fine and medium roots; 5 percent cobble-sized and 5 percent gravel-sized rock fragments; very strongly acid (pH 5.0); clear wavy boundary.

Bw1—7.5 to 19 inches; dark yellowish brown (10YR 4/6) stony fine sandy loam; moderate medium subangular blocky structure; friable; common medium and coarse roots; 20 percent stone-sized and 5 percent cobble-sized rock fragments; very strongly acid (pH 5.0); clear smooth boundary.

Bw2—19 to 37 inches; yellowish brown (10YR 5/6) fine sandy loam; moderate medium subangular blocky structure; friable; few medium roots; 3 percent cobble-sized and 5 percent gravel-sized rock fragments; very strongly acid (pH 4.9); clear smooth boundary.

C—37 to 45 inches; light yellowish brown (10YR 6/4) loam; massive; friable; 5 percent cobble-sized and 5 percent gravel-sized rock fragments; very strongly acid (pH 4.8).

Site 4. Charlton Profile

Site 4. Charlton and Chatfield Landscape

Site 5: Bronx Botanical Garden
Series: Chatfield loam, 1 percent slope
Land use: Native Forest
Parent Material: Till

Leaf litter—1 to 0 inches.

A1—0 to 1.5 inches; black (10YR 2/1) loam; strong medium granular structure; friable; common very fine and fine roots; 7 percent gravel-sized rock fragments; very strongly acid (pH 4.8); abrupt smooth boundary.

A2—1.5 to 7 inches; dark brown (10YR 3/3) loam; moderate medium and coarse granular structure; friable; common fine roots; 6 percent gravel-sized rock fragments; very strongly acid (pH 4.7); clear wavy boundary.

Bw—7 to 25 inches; dark yellowish brown (10YR 4/6) stony fine sandy loam; moderate medium subangular blocky structure; friable; 15 percent stone-sized, 5 percent cobble-sized, and 7 percent gravel-sized rock fragments; very strongly acid (pH 4.8); abrupt wavy boundary.

R—25 inches; schist bedrock.

Site 5. Chatfield Profile

Site 5. Chatfield Landscape

Site 6: Bronx Park East- Bronx Park East and 216th
Series: Greenbelt loam
Land use: City Park (High use)
Parent Material: Clean (<10% artifacts) loamy fill

No description taken

Site 7: Bronx River Parkway and
Series: Suncook sandy loam, 1 percent slope
Land use: High way Buffer
Parent Material: Alluvium

A—0 to 5 inches; very dark grayish brown (10YR 3/2) sandy loam; strong medium and coarse granular structure; friable; many very fine and common fine, medium, coarse and very coarse roots; 5 percent gravel-sized rock fragments; neutral (pH 6.7); clear smooth boundary.

C1—5 to 22 inches; brown (10YR 4/3) loamy coarse sand; massive; friable; very few very fine, fine and medium roots; 10 percent gravel-sized rock fragments; neutral (pH 6.7); very abrupt wavy boundary.

C2—22 to 25 inches; dark grayish brown (2.5Y 4/2) gravelly coarse sand; single grain; loose; 17 percent gravel-sized rock fragments and 3 percent gravel-sized coal and slag; neutral (pH 6.8).

C3—25 to 32 inches; 80 percent dark grayish brown (2.5Y 4/2) and 20 percent light olive brown (2.5Y 5/4) loamy sand; single grain; loose; 6 percent gravel-sized rock fragments; neutral (pH 7.0).

C4—32 to 35 inches; light olive brown (2.5Y 5/3) gravelly sand; single grain; loose; 5 percent medium prominent grayish brown (2.5Y 5/2) iron depletions; 22 percent gravel-sized rock fragments and 3 percent gravel-sized slag; neutral (pH 7.1).

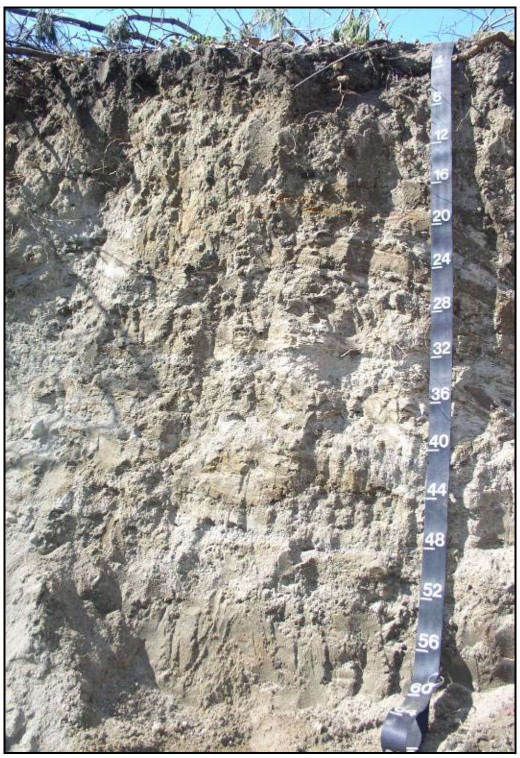
C5—35 to 45 inches; very dark gray (2.5Y 3/1) fine sandy loam; massive; friable; few very fine and fine roots; common (10 percent) coarse prominent dark reddish brown (5YR 3/4) and common (8 percent) fine prominent dark reddish brown (5YR 3/4) iron concentrations; neutral (pH 6.8).

C6—45 to 49 inches; light olive brown (2.5Y 5/3) gravelly coarse sand; single grain; loose; 20 percent gravel; neutral (pH 7.2).

C7—49 to 64 inches; alternating bands of the last 2 horizons.

C8—64 to 73 inches; very dark gray (2.5Y 3/1) fine sandy loam; massive; friable; very few very fine roots; common medium dark yellowish brown (10YR 4/4) and common medium prominent strong brown (7.5 YR 4/6) iron concentrations; slightly acid (pH 6.2).

C9—73 to 80 inches; black (2.5Y 2/1) sandy loam; massive; friable; slightly acid (pH 6.5).



Site 7. Suncook Profile

Site 7. Suncook Landscape

Site 8: Bronx River Forest (North of Burke Ave Bridge)
Series: Suncook sandy loam, 0 to 3 percent slope
Land use: Floodplain
Parent Material: Alluvium

A1—0 to 2.5 inches; very dark brown (10YR 2/2) fine sandy loam; moderate medium and fine granular structure; friable.

A2—2.5 to 5 inches; very dark grayish brown (10YR 3/2) loamy sand; weak medium granular structure; very friable.

CA—5 to 14 inches; 80 percent dark yellowish brown (10YR 3/4) loamy sand with 20 percent very dark brown (10YR 2/2) streaks; single grain; loose.

C1—14 to 26 inches; dark yellowish brown (10YR 4/6) loamy sand; single grain; loose.

C2—26 to 40 inches; dark yellowish brown (10YR 4/6) loamy sand; single grain; loose (Slightly coarser and paler than C1).

No picture
See Site 9 for a landscape picture

Site 9: Bronx River Forest (North of Burke Ave Bridge)
Series: Olinville sandy loam, 0 to 3 percent slope
Land use: Floodplain
Parent Material: <40 inches clean fill over alluvium

^A1—0 to 2.5 inches; very dark brown (10YR 2/2) loam, dark grayish brown (10YR 4/2) dry; strong fine and medium granular structure; friable; common fine roots; slightly acid (pH 6.5); clear smooth boundary.

^A2—2.5 to 10 inches; very dark grayish brown (10YR 3/2) loam, yellowish brown (10YR 5/4) dry; moderate fine and medium granular structure; friable; common fine, common medium, and common coarse roots; 2 percent gravel-sized rock fragments; slightly acid (pH 6.3); clear wavy boundary.

^Bwu—10 to 20 inches; dark yellowish brown (10YR 4/6) sandy loam; moderate thick platy structure; friable; few medium and few coarse roots; 3 percent gravel-sized coal fragments, 7 percent gneissic cobbles; slightly acid (pH 6.4); common (4 percent) medium prominent dark reddish brown (5YR 3/4) iron concentrations on ped faces; clear smooth boundary.

2Ab—20 to 24 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; friable (slightly firm in place); slightly acid (pH 6.3); common (13 percent) medium prominent dark reddish brown (5YR 3/4) iron concentrations; clear wavy boundary.

2ABb—24 to 28 inches; 70 percent dark grayish brown (10YR 4/2) and 30 percent dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky and moderate medium granular structure; friable; slightly acid (pH 6.5); clear wavy boundary.

2A’b— 28 to 33 inches; very dark grayish brown (10YR 3/2) loam; moderate medium granular structure; friable; neutral (pH 6.7); common (13 percent) medium distinct dark yellowish brown (10YR 4/6) iron concentrations; clear wavy boundary.

2Bb—33 to 39 inches; brown (10YR 4/3) fine sandy loam; weak medium subangular blocky structure; friable; common (16 percent) dark grayish brown (10YR 4/2) iron depletions and common (9 percent) fine prominent strong brown (7.5YR 4/6) iron concentrations; neutral (pH 6.7); clear wavy boundary.

2BC—39 to 42 inches; 75 percent dark yellowish brown (10YR 4/6) and 25 percent dark brown (10YR 3/3) fine sandy loam; weak medium subangular blocky structure; slightly acid (pH 6.2).

Site 9. Olinville Profile

Site 9. Olinville Landscape

Site 10: Bronx River Forest (North of Burke Ave Bridge)
Series: Olinville sandy loam, 0 to 3 percent slope
Land use: Floodplain
Parent Material: <40 inches clean fill over alluvium

^A1—0 to 2 inches; very dark brown (10YR 2/2) silt loam; strong medium and coarse granular structure; friable; common very fine roots; neutral (pH 6.7); abrupt smooth boundary.

^A2—2 to 11 inches; very dark grayish brown (10YR 3/2) loam; moderate medium and fine subangular blocky structure; friable; common medium and coarse, and few fine roots; 2 percent gravel-sized rock fragments; moderately acid (pH 5.6); clear smooth boundary.

^BA—11 to 15 inches; 55 percent dark yellowish brown (10YR 4/4) and 42 percent very dark grayish brown (10YR 3/2) sandy loam; moderate medium and coarse subangular blocky structure; friable; very few fine roots; 7 percent gravel-sized and 3 percent cobble-sized rock fragments; common (3 percent) medium distinct strong brown (7.5YR 4/6) iron concentrations; moderately acid (pH 5.6); abrupt smooth boundary.

^2Bw1—15 to 24 inches; dark brown (10YR 3/3) gravelly sandy loam; moderate medium subangular blocky structure; friable; very few fine roots; 15 percent gravel-sized and 3 percent cobble-sized rock fragments; common (3 percent) fine faint dark yellowish brown (10YR 3/6) iron concentrations; slightly acid (pH 6.1); clear smooth boundary.

^2Bw2—24 to 30 inches; dark grayish brown (10YR 4/2) stony loam; moderate coarse subangular blocky structure; friable; 9 percent cobble-sized, 6 percent stone-sized, and 5 percent gravel-sized rock fragments; common (10 percent) fine and medium distinct dark reddish brown (5YR 3/3) iron concentrations; slightly acid (pH 6.2); abrupt smooth boundary.

3Ab—30 to 35 inches; dark gray (2.5Y 4/1) silt loam; massive; firm; common (7 percent) medium prominent yellowish red (5YR 4/6) and common (7 percent) medium prominent strong brown (7.5YR 4/6) iron concentrations; moderately acid (pH 6.0); clear wavy boundary.

3C1—35 to 40 inches; dark brown (10YR 3/3) fine sandy loam; massive; friable; common (3 percent) medium prominent yellowish red (5YR 4/6) iron concentrations and few (2 percent) medium distinct brown (10YR 5/3) iron depletions; slightly acid (pH 6.1); auger sample.

3C2—40 to 52 inches; brown (10YR 4/3) silt loam; massive; firm; moderately acid (pH 6.0); auger sample.

3A'b—52 to 60 inches; dark gray (10YR 4/1) silt loam; massive; firm; common (6 percent) medium distinct dark yellowish brown (10YR 3/6) and common (3 percent) medium prominent dark reddish brown (5YR 3/4) iron concentrations; moderately acid (pH 6.0); auger sample.

Site 10. Olinville Profile (See landscape picture for site 11)

Site 11: Sims Hugo Neu
Series: Laguardia
Land use: Industrial metal recycling facility
Parent Material: >40" skeletal fill with >10 percent artifacts

^Au—0 to 2.5 inches; dark brown (10YR 3/3) gravelly sandy loam; weak medium granular and weak medium subangular blocky structure; friable; 22 percent gravel-sized natural rock fragments and 10 percent gravel-sized metal and brick fragments; strongly alkaline (pH 8.5); strong petrochemical odor; clear wavy boundary.

^ACu—2.5 to 8 inches; 75 percent very dark grayish brown (10YR 3/2) and 25 percent black (10YR 2/1) very gravelly sandy loam; massive; extremely firm; 12 percent cobble-sized brick and metal fragments, 20 percent gravel-sized natural rock fragments, and 20 percent gravel-sized brick, metal, and plastic fragments; strongly alkaline (pH 8.5);strong petrochemical odor; clear wavy boundary.

^Cu1—8 to 28 inches; jet black (no matching chip) extremely cobbly sandy loam; massive; extremely firm; slightly sticky; 25 percent cobble-sized brick fragments, 30 percent gravel-sized brick, metal, and plastic fragments, and 7 percent gravel-sized natural rock fragments; strongly alkaline (pH8.5); strong petrochemical odor; clear smooth boundary.

^Cu2—28 to 57 inches; black (2.5Y 2.5/1) extremely cobbly loamy sand; massive; friable; 40 percent cobble-sized brick fragments; 15 percent gravel-sized brick and cinder fragments, and 5 percent gravel-sized natural rock fragments; strongly alkaline (pH 8.5); strong petrochemical odor; clear smooth boundary.

2^Cu3—57 inches+; very dark grayish brown (2.5Y 3/2) loam/clay loam; massive; slightly firm; 6 percent fine prominent black staining; 1 percent gravel-sized rock fragments; moderately alkaline (pH 8.0); moderate petrochemical odor.

Water table is at 80 inches.

Site 11. Laguardia Profile

Site 11. Laguardia Landscape

Site 12: Bronx Park East (Bronx Blvd and Waring)
Series: Hollis
Land use: City park (high use)
Parent Material: Shallow till (Bedrock at <20'')

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine and medium granular structure; friable; many fine and few medium roots; 1 percent gravel-sized rock fragments; very strongly acid (pH 5.2); clear smooth boundary.

A2—3 to 6.5 inches; dark brown (10YR 3/3) fine sandy loam; weak medium granular structure; friable; many very fine, fine and common medium roots; 6 percent gravel-sized and 6 percent cobble-sized rock fragments; strongly acid (pH 5.0); clear smooth boundary.

BA—6.5 to 10.5 inches; 60 percent dark yellowish brown (10YR 4/6) and 40 percent dark brown (10YR 3/3) sandy loam; moderate medium subangular blocky structure; friable; common very fine, fine, and medium roots; 10 percent cobble-sized and 2 percent flagstone-sized rock fragments; strongly acid (pH 5.2); clear smooth boundary.

Bw—10.5 to 18 inches; strong brown (7.5YR 4/6) sandy loam; moderate medium subangular blocky structure; friable; few very fine, common fine, common medium, and few coarse roots;

5 percent gravel-sized, 5 percent cobble-sized, and 2 percent flagstone-sized rock fragments; strongly acid (pH 5.1).

R—18 inches; schist bedrock.

Site 12. Hollis Landscape

Site 12. Hollis Profile

Site 13: Soil Pit, Soundview Park, SW of Boynton and Lafayette
Series: Laguardia
Landuse: Recreational Park
Parent Material: loamy fill with greater than 10% (by volume) artifacts
Vegetation: Turf (groundcover); Mugwort (herbaceous layer); Big-tooth Aspen (tree canopy)

^Au—0 to 2 inches; very dark brown (10YR 2/2) sandy loam; weak fine granular structure; friable; few fine, few medium, and few coarse roots; 2 percent gravel-sized quartzose fragments and 2 percent gravel-sized slag fragments; neutral (pH 7.2); abrupt smooth boundary.

^Bwu—2 to 6 inches; yellowish brown (10YR 5/4) gravelly sandy loam; moderate coarse granular structure; friable; few fine, few medium, and few coarse roots; 20 percent gravel-sized quartzose fragments and 8 percent gravel-sized coal and slag fragments; neutral (pH 7.1); abrupt smooth boundary.

2^Cu1—6 to 15 inches; dark grayish brown (10YR 4/2) very gravelly loamy sand; single grain; very friable, but slightly firm in place; few fine roots; 45 percent gravel-sized coal and slag fragments; slightly alkaline (pH 7.6); clear wavy boundary.

2^Cu2—15 to 36 inches; dark yellowish brown (10YR 3/4) very cobbly sandy loam; single grain; friable with some firm masses; few fine roots; 15 percent cobble-sized brick, plastic, and metal fragments, 28 percent gravel-sized coal, slag, and brick fragments, and 5 percent gravel-sized quartzose fragments; moderately alkaline (pH 8.0).

13. Laguardia Soil Profile **Site 13**. Laguardia LandscapeSite

Site 14: Soundview Park
Landuse: Park
Series: Laguardia
Parent Material: Fill with greater than 10% (by volume) artifacts, and greater than 35% coarse fragments
Vegetation: Turfgrass with some weeds

No Profile Description Available

Site 15: Soundview Park, south of Lafayette Ave (10 feet from fence) between Colgate & Boynton Ave
Landuse: Park
Series: Laguardia
Parent Material: Fill with greater than 10% (by volume) artifacts, and greater than 35% coarse fragments
Vegetation: Turfgrass with some weeds

^A1—0-5 inches; very dark grayish brown (10YR 3/2) sandy loam; moderate fine granular structure; friable; few fine roots; 7 percent (by volume) gravel-sized rock fragments; slightly alkaline (pH 7.4); clear smooth boundary.

^Au2—5-12 inches; dark grayish brown (10YR 4/2) cobbly sandy loam; weak medium sub-angular blocky; friable; few fine roots; 7 percent gravel-sized rock fragments, 3 percent cobble-sized rock fragments, 3 cobble-sized brick fragments, and 3 percent gravel-sized glass fragments; slightly alkaline (pH 7.6); clear smooth boundary.

^Cu1—12-18 inches; 88 percent brown (10YR 4/3), with 12 percent horizontal streaks of dark gray (10YR 4/1), sandy loam; weak coarse subangular blocky structure; firm; 7 percent cobble-sized rock fragments and 3 percent cobble-sized brick fragments; slightly alkaline (pH 7.8); clear smooth boundary.

^Abu—18- 19.5 inches; black (10YR 2/1) loam; moderate medium granular structure; friable; common fine, common medium, and few coarse roots; 3 percent gravel-sized rock fragments and 7 percent gravel-sized glass fragments; slightly alkaline (pH 7.8); abrupt smooth boundary.

^M—19.5- 22.5 inches; rotten concrete 'manufactured' layer; continuous; massive; extremely firm; no pore space; abrupt smooth boundary.

2^Cu2—22.5-32 inches; dark brown extremely cobbly (10YR 3/3) sandy loam; weak coarse subangular blocky structure; friable; 20 percent cobble-sized rock fragments, 10 percent gravel-sized rock fragments, 20 percent cobble-sized concrete fragments, 5 percent gravel-sized concrete fragments, and 5 percent gravel-sized glass fragments; slightly alkaline (pH 7.8); clear smooth boundary.

3^Cu3—32- 40 inches; very dark gray (10YR 3/1) gravelly loamy sand; single grain; friable; 50 percent gravel-sized coal slag fragments; moderately alkaline (pH 8.0).

Site 16: Soundview Park
Series: Laguardia
Landuse: Park
Parent Material: Fill with greater than 10% artifacts, and greater than 35% coarse fragments
Vegetation: Mugwort; aspen; 1 percent surface stones

^Au1—0-6 inches; very dark brown (10YR 2/2) sandy loam; moderate fine and medium granular structure; friable; common fine, common medium, and common coarse roots; 3 percent gravel-sized rock fragments, 2 percent gravel-sized brick fragments, and 2 percent gravel-sized coal slag fragments; slightly alkaline (pH 7.6); clear smooth boundary.

^Au2—6-11 inches; dark brown (10YR 3/3) sandy loam; moderate medium granular structure; friable; common fine, common medium, and few coarse roots; 4 percent gravel-sized rock fragments, 3 percent gravel-sized brick fragments, and 2 percent gravel-sized coal slag fragments; moderately alkaline (pH 8.0); clear smooth boundary.

^Cu1—11-21 inches; brown (10YR 4/3) very gravelly loamy sand; massive; friable; 20 percent gravel-sized rock fragments, 3 percent cobble-sized rock fragments, 15 percent gravel-sized brick fragments, 10 percent gravel-sized concrete fragments, 5 percent gravel-sized coal slag fragments, 2 percent cobble-sized concrete fragments, and 4 percent stone-sized concrete fragments; moderately alkaline (pH 8.0); clear smooth boundary.

^Cu2—21-40 inches; grayish brown (10YR 5/2) very gravelly sandy loam; massive; firm; 8 percent gravel-sized rock fragments, 3 percent cobble-sized rock fragments, 15 percent gravel-sized brick fragments, 10 percent gravel-sized concrete fragments, 7 percent gravel-sized coal slag fragments, 5 percent cobble-sized concrete fragments, and 5 percent stone-sized concrete fragments; moderately alkaline (pH 8.0).

Site 15. Laguardia Profile

Site16. Laguardia Profile

17. Backyard at YMPJ – 1384 Stratford Ave
Series: Greenbelt
Land use: Residential (garden)
Parent material: Fill material with less than 10 percent artifacts

^A1—0 to 4 inches; very dark gray (10YR 3/1) sandy loam; weak medium granular and weak fine subangular blocky structure; friable; very few fine roots; 2 percent gravel-sized rock fragments; slightly acid (pH 6.2); clear smooth boundary.

^A2—4 to 7 inches; olive brown (2.5Y 4/3) sandy loam; weak fine subangular blocky structure; friable; few medium and few coarse roots; 5 percent cobble-sized rock fragments and 2 percent gravel-sized rock fragments; neutral (pH 6.6); abrupt smooth boundary.

^Bw—7 to 20 inches; 70 percent olive gray (5Y 5/2) sandy loam and 25 percent light gray (2.5Y 7/2) loamy sand; weak coarse subangular blocky structure; friable; 6 percent cobble-sized rock fragments and 3 percent gravel-sized rock fragments; strongly acid (pH 5.4); common (5 percent) fine prominent yellowish brown (10YR 5/8) iron concentrations; clear smooth boundary.

^C—20 to 30 inches; 60 percent light olive gray (5Y 6/2) sandy loam and 30 percent light gray (2.5Y 7/1) loamy sand; massive; friable; 8 percent cobble-sized rock fragments and 5 percent gravel-sized rock fragments; strongly acid (pH 5.2); common (10 percent) fine and medium prominent yellowish brown (10YR 5/8) iron concentrations.

Site 17. Greenbelt Profile

18. Backyard at 1325 Stratford Ave
Series: Centralpark
Land use: Residential (backyard)
Parent material: Fill material with less than greater than 35 percent natural coarse fragments)

Turf covered area; 55 to 60 percent of back yard is permeable green space; small rock outcrop area comprises 2 percent of green space

^Au—0 to 11 inches; very dark grayish brown (10YR 3/2) very cobbly sandy loam; weak coarse granular and weak fine subangular blocky structure; friable; very few fine roots; 25 percent gravel-sized rock fragments and 25 percent cobble-sized rock fragments; 1 percent gravel-sized glass fragments and 1 percent gravel-sized coal fragments; slightly acid (pH 6.5); clear smooth boundary.

^Cu—11 to 25 inches; 60 percent yellowish brown (10YR 5/4) and 38 percent dark gray (10YR 4/1) extremely cobbly sandy loam; weak coarse subangular blocky structure and massive; friable; 5 percent stone-sized, 25 percent cobble-sized, and 30 percent gravel-sized rock fragments; 1 percent gravel-sized glass fragments and 1 percent gravel-sized coal fragments; common (2 percent) medium prominent strong brown (7.5YR 5/6) iron concentrations; neutral (pH 6.8).

Site 18. Centralpark Profile

Site 18. Centralpark Landscape

19. Tree pit strip (approx. 4ft wide x 18ft long) – 1325-27 Stratford Ave
Series: Greenbelt
Land use: Residential
Parent material: Fill material with less than 10 percent artifacts

1 tree – ash?

Litter layer—1-0 inches: wood chip mulch.

^A1—0 to 1 inch; black (10YR 2/1) sandy loam; moderate fine and medium granular structure; friable; moderately alkaline (pH 8.0).

^A2—1 to 3 inches; very dark brown (10YR 2/2) sandy loam; moderate medium granular structure; friable; moderately alkaline (pH 8.0).

^C—3 to 12 inches; brown (10YR 4/3) sandy loam; massive; firm; common (5 percent) medium prominent strong brown (7.5YR 4/6) iron concentrations; moderately alkaline (pH 7.6).

Site 19. Tree pit strip Landscape

20. NYCHA property – SW corner of E. 174th St & Stratford Ave
Series: Greenbelt
Land use: Residential (courtyard)
Parent material: Fill material with less than 10 percent artifacts

Border strip next to high rise, SW corner of parking lot – mostly bare surface with few shrubs & trees: privet hedge, honey locust, sycamore

^A—0 to 10 inches; dark brown (10YR 3/3) sandy loam; moderate medium granular and moderate medium subangular blocky structure; firm; common fine and few medium roots; 8 percent gravel-sized rock fragments and 3 percent cobble-sized rock fragments; 1 percent gravel-sized glass fragments and 1 percent gravel-sized brick fragments; slightly alkaline (pH 7.6); clear smooth boundary.

^Bwu—10 to 24 inches; dark yellowish brown (10YR 4/4) very cobbly sandy loam; moderate medium subangular blocky structure; firm; 25 percent cobble-sized rock fragments and 18 percent gravel-sized rock fragments; 2 percent gravel-sized brick fragments; slightly alkaline (pH 7.8).

Site 20. Landscape

Site 20. Greenbelt Profile

Glossary

Soils Information Available Online: NRCS Soils website (http://soils.usda.gov)
Under the *Soil Survey* link*:* Soil Surveys available online, status maps, lab and research data on selected soil series.
Under *Soil Use:* Information on *Hydric Soils* and *Soil Quality,* the latter includes *Soil Quality Assessment*, and, under *Land Management and Soil Quality*, Urban Soil Quality Technical Notes on compaction, heavy metal contamination, and erosion and sedimentation from construction sites. The *Urban Soil Primer*, an introduction to urban soils.
Under *Soil Education:* Soil Facts and information for students and teachers, including the *Soil Biology Primer*.
Under *Technical References*: Books, manuals, guides, etc. for mapping, describing, analyzing, and investigating soils, Information on Soil Classification, including Official Series Descriptions, the *Field Book for Describing and Sampling Soils*, the *Field Indicators of Hydric Soils*, policies and procedures for Soil Survey, a lab methods manual.

Aggregates are fine soil particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are also called peds.

Alluvial refers to the environments, action, and products of rivers or streams.

Artifacts are human altered materials such as coal ash, iron ore slag, asphalt; human refuse such as garbage or sewage sludge; human processed natural materials such as lumber; and human manufactured material such as plastic, fiberglass, brick, cinder block, concrete, iron and steel, organic byproducts, and other building debris. Garbage or refuse fragments include food and household cooking waste, soiled rags and paper cleaning products, broken household objects, empty glass, paper, and plastic containers and bags, mail, magazines, and newspapers, and simple household construction materials normally disposed of by homeowners and transported to dumps and landfills. They are generally described in the coarse fragment size range (>2mm). Our current classification differentiates those soils with greater than 10 percent artifacts.

Aspect is the direction in which a slope faces.

Cation refers to an ion carrying a positive charge of electricity. Common soil cations include calcium, potassium, magnesium, sodium, hydrogen, and aluminum.

Clean refers to a type of fill found in anthropogenic soils containing less than 10 percent artifacts.

Coarse Fragments are those particles in mineral soil material greater than 2mm. USDA recognizes the following:

Gravel	2 to 76mm (3 inches)
Cobbles	76 to 250mm (10 inches)
Stones	250 to 600mm (24 inches)
Boulders	> 600mm

Coarse fragments are described / estimated in the field on a percent volume basis. Textural modifiers are used when the volume exceeds 15 percent as follows:

15 to <35	Use adjective for appropriate size; e.g., *gravelly.*
35 to <60	Use “very” with the appropriate size adjective; e.g., *very gravelly.*
60 to <90	Use “extremely” with the appropriate size adjective; e.g., *extremely gravelly.*
≥ 90	Use the appropriate noun for the dominant size class without an adjective or modifier; gravel.

Consistence refers to the ease with which a lump of soil can be crushed by the fingers. It can also describe the difficulty of excavating the soil. Soil consistence, and its description, depends on soil moisture content. Terms commonly used to describe consistence in a moist soil are:

Loose: noncoherent when dry or moist; does not hold together in a mass; intact specimen not obtainable.
Friable: when moist, crushed easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.
Firm: crushed under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.
Very Firm: needs considerable pressure to crush between thumb and forefinger.

Control section is that part of the soil on which classification is based. The thickness can vary among different kinds of soil, but for many soils it is that part of the profile between 10 and 40 inches in depth.

Drainage Class refers to the frequency and duration of wet periods under conditions similar to those under which the soil developed. Classes include:

Excessively and somewhat excessively drained: The seasonal high water table is rarely higher than 60 to 72 inches from the surface for any significant period during the growing season. Most of these soils are sandy or sandy skeletal.
Well drained: The seasonal high water table is rarely higher than 40 inches from the surface for any significant period during the growing season.
Moderately well drained: The seasonal high water table is between 18 and 40 inches below the surface for a significant period during the growing season.
Somewhat poorly drained: The seasonal high water table is between 6 and 18 inches below the surface for a significant period during the growing season.
Poorly drained: The seasonal high water is at, or within 6 inches below the surface for a significant period during the growing season. These soils may be ponded for brief periods outside of the growing season.
Very poorly drained: The seasonal water table is at, or ponded above, the surface for a significant period during the growing season.

Dense basal till is unconsolidated material deposited and compacted beneath a glacier, having a relatively high bulk density.

Eluvial refers to the process by which soil material is removed in suspension or solution from a layer, also described as leaching.

Eolian refers to earth material transported and deposited by the wind including dune sands, sand sheets, and loess deposits.

Fine earth refers to the <2mm fraction of a soil.

Flooding frequency refers to the number of times flooding occurs over a period of time and is expressed as a class. The classes of flooding are defined as follows:

None: No reasonable possibility of flooding; near 0 percent chance of flooding in any year or less than 1 time in 500 years.
Very Rare: Flooding is very unlikely but possible under extremely unusual weather conditions; less than 1 percent chance of flooding in any year or less than 1 time in 100 years but more than 1 time in 500 years.
Rare: Flooding unlikely but possible under unusual weather conditions; 1 to 5 percent chance of flooding in any year or nearly 1 to 5 times in 100 years.
Occasional: Flooding is expected infrequently under usual weather conditions; 5 to 50 percent chance of flooding in any year or 5 to 50 times in 100 years.
Frequent: Flooding is likely to occur often under usual weather conditions; more than a 50 percent chance of flooding in any year or more than 50 times in 100 years, but less than a 50 percent chance of flooding in all months in any year.
Very frequent: Flooding is likely to occur very often under usual weather conditions; more than a 50 percent chance of flooding in all months of any year.

Flooding duration refers to the time of inundation per flood occurrence, and is given only for occasional, frequent, and very frequent classes. The duration classes are:

Extremely brief	0.1 to < 4 hours
Very brief	4 to < 48 hours
Brief	2 to < 7 days
Long	7 to < 30 days
Very long	≥ 30 days

Floodplain refers to the nearly level plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is usually a constructional landform built of sediment deposited during overflow and lateral migration of streams.

Fragmental refers to those soils with greater than 90 percent (by volume) coarse fragments.

Gleyed refers to a soil condition resulting from prolonged soil saturation, manifested by the presence of bluish, greenish, or gray colors through the soil mass, brought about by the reduction of iron to the ferrous state. See ***Processes in Saturated Soils*** in the Glossary.

Horizon is a layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In identification, an uppercase letter represents the major horizon, and numbers or lowercase letters that follow represent subdivisions. The major horizons include:
O horizon – organic soil material from fresh and decaying plant residue
A horizon – mineral horizon at or near the surface enriched in organic matter.
B horizon – mineral horizon below an A, characterized by one or more of the following:
1) accumulation of clay, sesquioxides, humus or a combination of these;
2) blocky or prismatic structure;
3) redder or browner colors that the A or C horizon.
C horizon – mineral horizon, excluding bedrock, little affected by soil forming properties.
M layer – human manufactured subsoil layer that is physically root-limiting.
R layer – hard bedrock.
Subdivisions or kinds of major horizons include:

a	highly decomposed organic material (*sapric*); used with O
b	buried genetic horizon
e	intermediately decomposed organic material (*hemic*); used with O
g	strongly gleyed (from anaerobic conditions), chroma of matrix or ped faces 2 or less
i	slightly decomposed organic material (*fibric*); used with O
u	horizon containing artifacts
w	development of color or structure; used with B

Vertical Subdivisions are also used to subdivide a master horizon to denote differences in texture, color, structure, etc., with arabic numerals as a suffix, e.g., C1, C2, C3; Bt1, Bt2, Bt3.

Transition Horizons are horizons dominated by properties of one horizon, but having subordinate properties of another, e.g., AB or BA. The first letter denotes the dominant process.

Discontinuities are used to indicate a significant change in particle size distribution or mineralogy that implies a difference in the material from which the horizons have formed (e.g., loess/till), and/or a significant difference in age. Arabic numbers are used as a prefix, with the 1 omitted, e.g., A, B1, 2B2, 2B3, 2BC, 2C. The ^ symbol is used as a prefix to denote a horizon or layer formed in human-transported materials.

Humus is the well decomposed, more or less stable portion of organic matter.

Hydrologic Soil Group is a soil interpretation or rating system for runoff potential. The chief consideration is the inherent capacity of the bare soil to permit infiltration. The soil properties that influence this potential are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. Slope and type of plant cover are not considered, but are separate factors in predicting runoff. The classes are:

A – Soils with low runoff potential and high infiltration rates even when thoroughly wet. Deep, well to excessively drained sand or gravel with very rapid and rapid permeability.

B – Soils with moderate infiltration rates when thoroughly wet; moderately deep to deep, moderately well drained to well drained soils with moderately fine to moderately coarse textures, and moderately rapid to moderate permeability.

C – Soils with low infiltration rates when thoroughly wet; soils with a layer that impedes downward movement of water and soils with moderately fine to fine textures and moderately slow and slow permeability.

D – Soils with high runoff potential and very low infiltration rates when thoroughly wet. Clayey soils with high swelling potential, soils with a high water table, soils with a claypan or clay layer near the surface, and shallow soils over nearly impermeable materials.

Illuvial refers to a process in which material carried from an overlying layer has been precipitated from solution or deposited from suspension. An illuvial horizon is a horizon of accumulation.

Levee refers to an artificial or natural embankment built along the margin of a watercourse, to protect land from inundation or to confine stream flow to its channel. Also see *natural levee.*

Loamy is a general texture term that includes very coarse sandy loam, coarse sandy loam, sandy loam, fine sandy loam, loam, sandy clay loam, and clay loam.

Meander refers to one of a series of regular freely developing sinuous curves, bends, loops, turns or windings in the course of a stream.

Micro-high refers to slightly elevated areas relative to the adjacent ground surface; changes in relief range from several centimeters to several meters; cross-sectional profiles can be simple or complex and generally consist of gently rounded, convex tops with gently sloping sides.

Micro-low refers to a slightly lower area relative to the adjacent ground surface (e.g. shallow depression); changes in relief range from several centimeters to several meters; cross-sectional profiles can be simple or complex and generally consist of subdued, concave, open or closed depressions with gently sloping sides.

Muck is highly decomposed organic soil material in which the original plant parts are not recognizable. Usually darker in color, higher in bulk density, and lower in water holding capacity than peat.

Mucky is a textural modifier that indicates a high organic matter content (>10 % by weight) in a mineral soil.

Mucky peat is organic soil material of an intermediate stage of decomposition, in which a significant part of the original plant parts are recognizable and a significant part is not.

Natural levee a long, broad low ridge or embankment of sand and coarse silt, built by a stream on its flood plain and along both sides of its channel, especially in the time of flood when water overflowing the normal banks is forced to deposit the coarsest part of its load. It has a gentle slope away from the river and toward the surrounding floodplain, and its highest elevation is closest to the river bank.

Organic matter refers to plant and animal residue in the soil in various stages of decomposition.

Particle-size class is used in Soil Taxonomy to characterize the grain-size composition of the whole soil, including the coarse fragments.

Particle size separates (USDA) for mineral soil include:

sand - 2 to 0.05 millimeters - gritty feel - can be seen with the eye
silt - 0.05 to .002 millimeters - smooth feel - can be seen with a light microscope
clay - less than .002 millimeters -sticky feel - can be seen with an electron microscope

Sand and silt, mostly quartz, are relatively inert; they form the ‘soil skeleton.’ Clay particles (layer silicates & oxides) are the active portion of the mineral soil, they have an electrical charge and a high surface area resulting in a high attraction for water, nutrients, other clay particles.

Peat is slightly decomposed organic soil material in which the original plant parts are recognizable.

Permeability describes the ease with which gases, liquids, or plant roots penetrate or pass through a bulk mass of soil or a layer of soil. The permeability classes are:

	$in\ hr^{-1}$	$\mu m\ s^{-1}$
Very rapid	$\geq$ 20	$\geq$ 141
Rapid	6 to <20	42 to 141
Moderately rapid	2 to <6	14 to 42
Moderate	0.6 to <2	4 to 14
Moderately slow	0.2 to <0.6	1.4 to 4
Slow	0.06 to <0.2	0.42 to 1.4
Very Slow	0.0015 to <0.06	0.01 to 0.42
Impermeable	0.00 to <0.0015	0.00 to 0.01

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

Ponding frequency refers to the number of times ponding occurs over a period of time and is expressed as a class. The classes of flooding are defined as follows:

None: No reasonable possibility of ponding; less than 1 time in 100 years.
Rare: Flooding unlikely but possible under unusual weather conditions; 1 to 5 percent chance of flooding in any year or nearly 1 to 5 times in 100 years.
Occasional: Flooding is expected infrequently under usual weather conditions; 5 to 50 percent chance of flooding in any year or 5 to 50 times in 100 years.
Frequent: Flooding is likely to occur often under usual weather conditions; more than a 50 percent chance of flooding in any year or more than 50 times in 100 years, but less than a 50 percent chance of flooding in all months in any year.

Ponding duration refers to the length of time of inundation per ponding occurrence, and is given only for occasional and frequent classes. The duration classes are:

Very brief	< 48 hours
Brief	2 to < 7 days
Long	7 to < 30 days
Very long	$\geq$ 30 days

Processes in Saturated Soils

Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic (in the absence of oxygen) conditions in the upper part of the soil. Prolonged saturation during the growing season results in a depletion of oxygen by plants and microorganisms in the soil. This lack of oxygen restricts aerobic root respiration and aerobic microbial reactions, and promotes the following biogeochemical processes: 1) a transformation of several elements from oxidized to reduced chemical forms; and 2) an accumulation of organic matter. Evidence of these processes is useful in identifying hydric soils.

The microbial breakdown of soil organic matter is an oxidation-reduction process. Under aerobic conditions, organic matter is oxidized (looses electrons), and oxygen (O_2) is reduced (gains electrons) and combines with hydrogen to form water. The ultimate products of aerobic degradation are water and CO_2. When the soil is flooded, the amount of oxygen is decreased; with continued breakdown of organic matter the oxygen can be all used up, and the soil becomes anaerobic. Biodegradation of organic matter now continues under different conditions; different groups of microbes go to work using different electron acceptors instead of oxygen. The decomposition processes are not as efficient or as complete as the aerobic one. A sequence of oxidation-reduction (electron transfer) reactions takes place. Nitrates, manganese oxides, iron oxides, sulfates, and carbon dioxide in soil are used as electron acceptors in anaerobic microbial reactions, in that specific order. After the removal of oxygen, nitrate is the first soil component to be reduced, then manganese, then iron, and eventually sulfate and CO_2. These transformations bring about the translocation and/or accumulation of these elements, which can result in morphological features useful in the identification of saturated zones in soil.

Nitrogen transformations in hydric soils can make the nutrient less available for plant uptake. However, excessive amounts of nitrate, the mobile form of nitrogen, can be reduced to prevent leaching losses.

In saturated soils, manganic (Mn^{+4}) compounds are reduced to more soluble manganous (Mn^{+2}) forms. Upon aeration, re-oxidized and re-deposited manganic oxides can appear as black films or coats on soil particles.

Iron is one of the most important coloring agents in soil. Oxidized, or ferric (Fe^{+3}), iron compounds are responsible for the brown, yellow, and red colors in soil. When iron is reduced to the ferrous (Fe^{+2}) form, it becomes mobile, and can be removed from certain areas of the soil. When the iron is removed, a gray color remains, or the reduced iron color persists in shades of green or blue. Upon aeration, reduced iron can be re-oxidized and re-deposited, sometimes in the same horizon, resulting in a variegated or mottled color pattern. These soil color patterns resulting from saturation, or ***redoximorphic features***, can indicate the duration of the anaerobic state, ranging from brown with a few mottles, to complete gray or ***gleization*** of the soil. Soils that are dominantly gray with brown or yellow mottles immediately below the surface horizon are usually hydric.

Sulfates in soils are reduced to sulfides when soils are nearly permanently saturated. The presence of hydrogen sulfide can be detected by the “rotten egg” odor, which is used as a hydric soil indicator. Sulfides can be toxic to microbes and plants, and upon re-oxidation, can lead to extremely acid conditions in soils when sulfuric acid is formed. Sulfides are more common in coastal wetlands than freshwater because of higher amounts of sulfate in seawater.

Certain bacteria can use CO_2 as an electron acceptor, resulting in the formation of methane (CH_4), or “swamp gas.” Methane production is generally higher in freshwater environments.

As the decomposition of organic residues proceeds in a very inefficient and slow manner when the soil surface is saturated, eventually the amount of organic matter can accumulate significantly. Nearly all soils have some organic matter, but when the content exceeds 20 to 35% (on a dry weight basis), it is considered organic soil material. Organic soil materials have a lower bulk density and a higher water and nutrient holding capacity than mineral soils. The term ***peat*** (or fibric organic material) has been used to refer to organic material in which the plant parts are still recognizable, and ***muck*** (sapric organic material) for that which is more decomposed, with no recognizable plant parts. ***Mucky peat*** (or hemic organic material) is intermediate between the two. As decomposition increases, organic material decreases in water holding capacity and bulk density, and becomes darker in color. If 16 inches or more of the upper 32 inches of a soil is organic material, the soil is considered an organic soil or ***histosol***. Wet mineral soils that do not have a sufficient thickness of organic materials to be classified as histosols can have an organic surface horizon 8 inches or more thick called a ***histic epipedon***.

Soil wetness can result from either a perched or a regional water table. A ***perched water table*** is caused by a hydraulically restrictive horizon, usually underlain by a more permeable horizon. A ***regional water table*** extends vertically without interruption, and is usually located in a low-lying area of the landscape.

Redoximorphic features are soil properties associated with wetness that result from the reduction and oxidation of iron and manganese compounds in the soil after saturation with water and desaturation, respectively. See ***Processes in Saturated Soils*** in the Glossary.

Sandy is a general texture term that includes coarse sand, sand, fine sand, very fine sand, loamy coarse sand, loamy sand, loamy fine sand, and loamy very fine sand.

Saturated hydraulic conductivity (Ksat) is a quantitative measure of the ability of a saturated soil (all pores filled with water) to transmit water when subjected to a hydraulic gradient. As Ksat is a more clearly defined and widely accepted term than permeability, The NRCS is replacing permeability classes with Ksat classes:

	$in\ hr^{-1}$	$\mu m\ s^{-1}$
Very high	$\geq$ 14.17	$\geq$ 100
High	1.417 to 14.17	10 to 100
Moderately high	0.142 to 1.417	1 to 10
Moderately low	0.014 to 0.142	0.1 to 1
Low	0.001 to 0.14	0.01 to 0.1
Very low	< 0.001	< 0.01

Silty is a general texture term that includes silt, silt loam, and silty clay loam.

Soil Depth Classes denote the depth to bedrock:

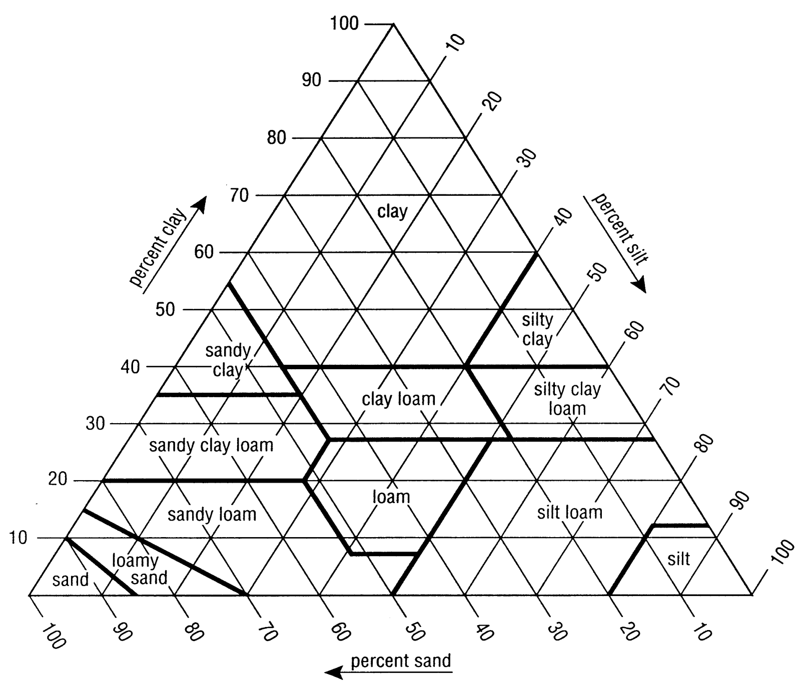
Very Deep	≥ 150cm	≥ 60 inches
Deep	100 to 150cm	40 to 60 inches
Moderately Deep	50 to 100cm	20 to 40 inches
Shallow	25 to 50cm	10 to 20 inches
Very Shallow	< 25cm	< 10 inches

Soil pH or reaction is a measure of acidity or alkalinity of a soil, expressed in pH values. The reaction classes are:

Extremely acid	< 4.5
Very Strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	≥ 9.1

Soil structure refers to the combination or arrangement of primary soil particles into secondary units or aggregates. Organic materials and clay are important binding agents, and wetting & drying cycles are important in creating structure. Soil structure influences pore space and water movement in soils. The size, shape, and grade are all used to describe soil structure.

Soil texture refers to the relative amounts of the three particle size separates in mineral soil material. Varying proportions of each size give the soil a 'texture.' Soil scientists use 12 textural classes (see triangle below):



There are 12 subclasses, based on sand size distribution, which subdivide the sand, loamy sand, and sandy loam classes as follows:

Coarse sand: A total of 25 percent or more very coarse and coarse sand and less than 50 percent of any other single grade of sand.
Sand: A total of 25 percent or more very coarse, coarse, and medium sand, a total of less than 25 percent very coarse and coarse sand, and less than 50 percent fine sand and less than 50 percent very fine sand.
Fine sand: 50 percent or more fine sand; or a total of less than 25 percent very coarse, coarse, and medium sand and less than 50 percent very fine sand.
Very fine sand: 50 percent or more very fine sand.
Loamy coarse sand: A total of 25 percent or more very coarse and coarse sand and less than 50 percent of any other single grade of sand.
Loamy sand: A total of 25 percent or more very coarse, coarse, and medium sand and a total of less than 25 percent very coarse and coarse sand, and less than 50 percent fine sand and less than 50 percent very fine sand.
Loamy fine sand: 50 percent or more fine sand; or less than 50 percent very fine sand and a total of less than 25 percent very coarse, coarse, and medium sand.
Loamy very fine sand: 50 percent or more very fine sand.
Coarse sandy loam: A total of 25 percent or more very coarse and coarse sand and less than 50 percent of any other single grade of sand.
Sandy loam: A total of 30 percent or more very coarse, coarse, and medium sand, but a total of less than 25 percent very coarse and coarse sand and less than 30 percent fine sand and less than 30 percent very fine sand; or a total of 15 percent or less very coarse, coarse, and medium sand, less than 30 percent fine sand and less than 30 percent very fine sand with a total of 40 percent or less fine and very fine sand.
Fine sandy loam: 30 percent or more fine sand and less than 30 percent very fine sand; or a total of 15 to 30 percent very coarse, coarse, and medium sand; or a total of more than 40 percent fine and very fine sand, one half or more of which is fine sand, and a total of 15 percent or less very coarse, coarse, and medium sand.
Very fine sandy loam: 30 percent or more very fine sand and a total of less than 15 percent very coarse, coarse, and medium sand; or more than 40 percent fine and very fine sand, more than one half or which is very fine sand, and a total of less than 15 percent very coarse, coarse, and medium sand.

Redoximorphic features are concentrations or depletions of iron or manganese which form in response to extended periods of saturation during the growing season. They are often used to interpret depth to water table in soil.

Sand size separates include the following:

Very coarse sand:	2.0 to 1.0mm
Coarse sand:	1.0 to 0.5mm
Medium sand:	0.5 to 0.25mm
Fine sand:	0.25 to 0.10mm
Very fine sand:	0.10 to 0.05mm

Skeletal refers to those soils with greater than 35 percent (by volume) coarse fragments.

Solum is the upper part of a soil profile, including the A, E, and B horizons, in which the processes of soil formation are active.

Subsoil is that portion of the soil profile below the topsoil and above the parent material. It includes the E and B soil horizons.

Substratum includes the C horizons and R layers below the depth of noticeable soil development; often the parent material of the soil above.

Taxadjuncts are soils with properties slightly outside the range of an existing series, but similar to that series in use and behavior.

Weathering refers to the physical and chemical changes produced in rocks and other materials near the earth’s surface by atmospheric agents.

References

Baskerville, C.A. 1992. Bedrock and engineering geologic maps of Bronx County and parts of New York and Queens Counties, New York. USGS Misc. Invest. Series Map I-2003, 1:24,000.

Brady, N. C., and Weil, R. R. 2002. The nature and properties of soils. 13th Edition. Prentice Hall, Upper Saddle River, NJ.

Brock, P.C. and P.W.G. Brock. 2001. Bedrock geology of New York City: More than 600 m.y. of geologic history. Field Guide for Long Island Geologists Field Trip, October 27, 2001. Available at: http://pbisotopes.ess.sunysb.edu/reports/ny-city/index.html

Bronx River Alliance. 2006. Bronx River ecological restoration and management plan. Available at: http://bronxriver.org/puma/images/usersubmitted/greenway_plan/

Bronx Valley Sewer Commission. 1896. The final report of the Bronx River Valley Sewer Commission, Westchester County Archives. Available at: http://www.westchesterarchives.com/HT/muni/wca/brvs.html

Doolittle, J.A. 1987. Using ground-penetrating radar to increase the quality and efficiency of soil surveys. *In*: Soil Survey Techniques. Soil Sci. Soc. Am. Spec. Publ. 20: 11-32.

HydroQual, Inc. 2003. Bronx River drainage area maps. Personal communication.

Karlen, D.L., Mausbach, M.J., Doran, J.W., Cline, R.G., Harris, R.F., and Schuman, G.E. 1997. “Soil quality: a concept, definition, and framework for evaluation.” *Soil Sci. Soc. Am. J.* 61: 4-10.

McNamara, John. 1984. History in asphalt: The origin of Bronx street and place names. Bronx Co. Historical Society, NY.

Merrill, F.J.H., N.H. Darton, A. Hollick, R.D. Salisbury, R.E. Dodge, B. Willis, H.A. Pressey. 1902. Description of the New York City district: United States Geological Survey Atlas of the United States, New York City Folio, No. 83.

Riversides Stewardship Alliance, 2006. Toronto homeowners’ guide to rainfall. Available at: http://www.riversides.org/rainguide/index.php

Sanderson, E. W. and D. LaBruna. 2006. Mapping the historical ecology and reconstructing the historical flora of the lower Bronx River: A guide for ecosystem restoration and outreach. Wildlife Conservation Society, Bronx, NY.

Schoeneberger, P.J., Wysocki, D.A., Benham, E.C., and Broderson, W.D. 1998. Field book for describing and sampling soils. Natural Resource Conservation Service, National Soil Survey Center, Lincoln, NE.

Schuberth, C.J. 1968. The geology of New York City and environs. The Natural History Press, Garden City, NY.

Soil Science Society of America. 1997. Glossary of soil science terms. Soil Science Society of America, Madison, WI.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook No. 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd Edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook No. 436.

Soil Survey Staff. 2006. Keys to soil taxonomy, 10th Edition. Natural Resources Conservation Service, U.S. Department of Agriculture.

Smith, H. 1976. Soil survey of District of Columbia. United States Department of Agriculture. In Cooperation with United States Department of Interior, National Park Service and National Capital Parks. U.S. Government Printing Office, Washington D.C.

Tedrow, J.C.F. 1986. Soils of New Jersey. R.E. Krieger Inc, Malabar, FL.

USDA-NRCS Strategic Plan. 2007. Available at: http://www.nrcs.usda.gov/about/strategicplan/

USGS 2006. Hydrologic unit maps, U.S. Department of the Interior, U.S. Geological Survey. Available at: http://water.usgs.gov/GIS/huc.html

Van Es, H. and R. Schindelbeck. 2002. Field procedures and data analysis for the Cornell Sprinkle Infiltrometer. Department of Crop and Soil Science, Cornell University, Ithaca, NY.