# APPENDIX K

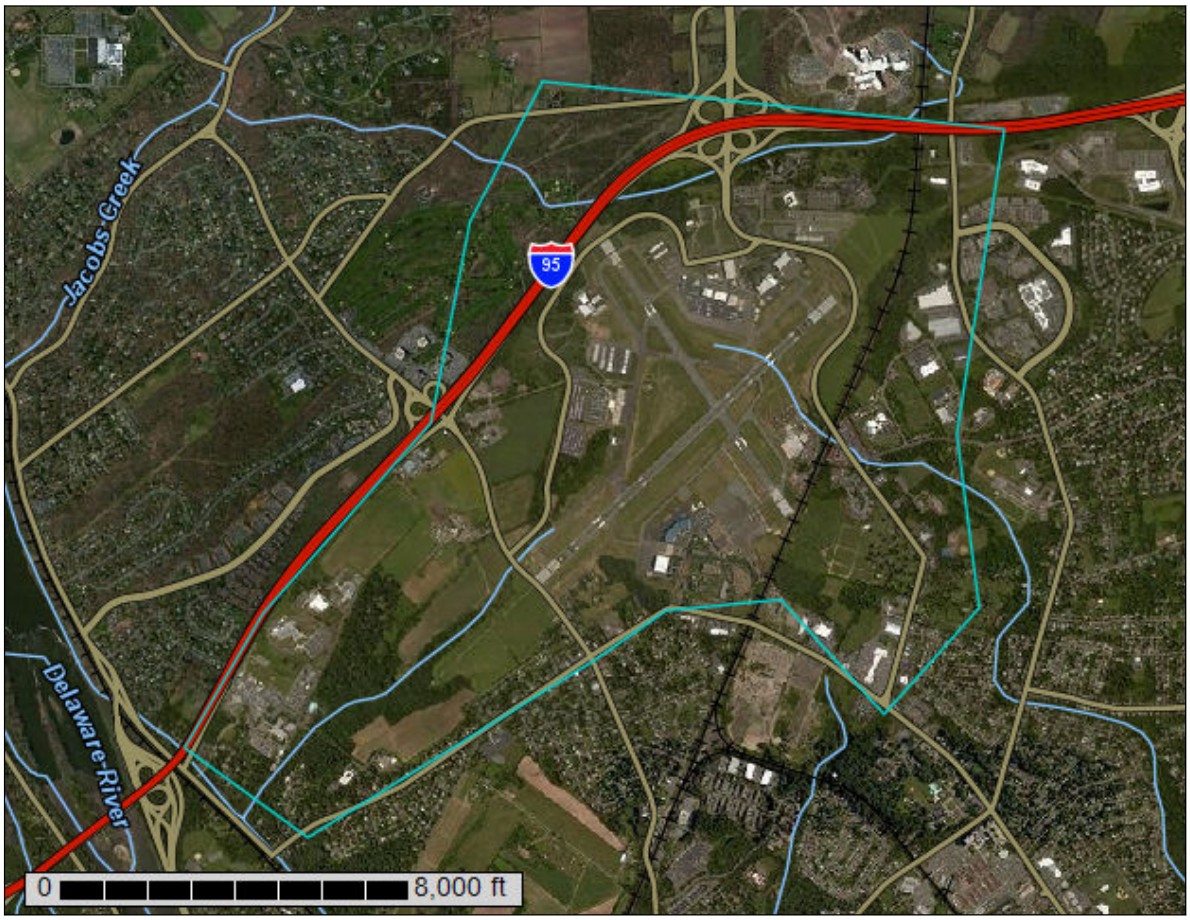
## *USDA Custom Soil Resource Report*

United States Department of Agriculture

Natural Resources Conservation Service

A product 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 participants

# Custom Soil Resource Report for Mercer County, New Jersey




March 25, 2017

# Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is 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.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

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

The National Cooperative Soil Survey is 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 (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

# Contents

# How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile 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 or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

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

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

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

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

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

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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

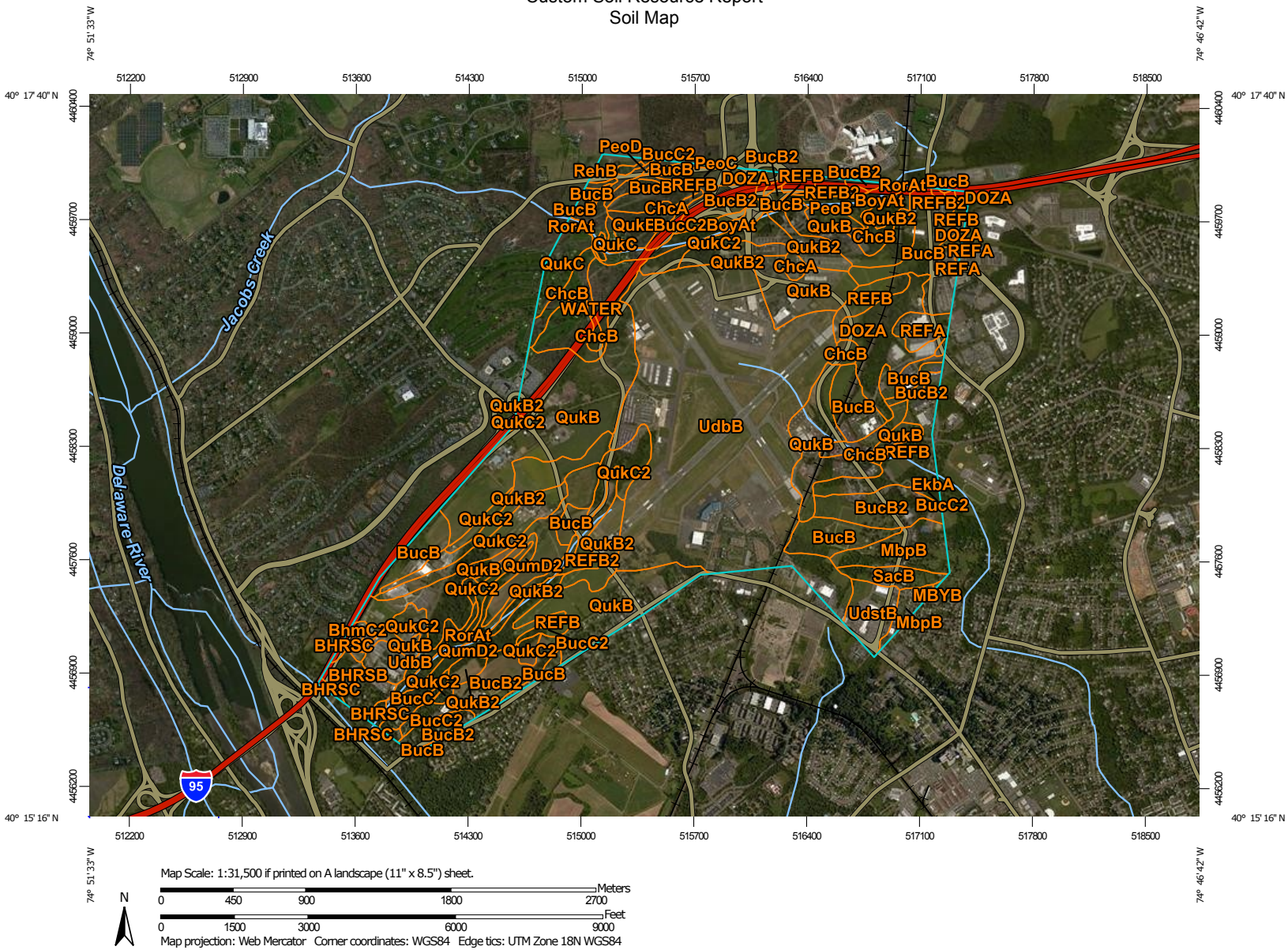
identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

[THIS PAGE INTENTIONALLY LEFT BLANK]

Custom Soil Resource Report
Soil Map



## MAP LEGEND

**Area of Interest (AOI)**

- Area of Interest (AOI)

**Soils**

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

**Special Point Features**

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

**Water Features**

- Streams and Canals

**Transportation**

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**

- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Mercer County, New Jersey
Survey Area Data: Version 12, Sep 28, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2011—Jul 5, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Mercer County, New Jersey (NJ021) | | | |
|---|---|---|---|
| **Map Unit Symbol** | **Map Unit Name** | **Acres in AOI** | **Percent of AOI** |
| BhmC2 | Birdsboro loam, 6 to 12 percent slopes, eroded | 3.6 | 0.2% |
| BHRSB | Birdsboro sandy subsoil variant soils, 2 to 6 percent slopes | 24.2 | 1.2% |
| BHRSC | Birdsboro sandy subsoil variant soils, 6 to 12 percent slopes | 8.5 | 0.4% |
| BoyAt | Bowmansville silt loam, 0 to 2 percent slopes, frequently flooded | 46.3 | 2.2% |
| BucB | Bucks silt loam, 2 to 6 percent slopes | 184.2 | 8.8% |
| BucB2 | Bucks silt loam, 2 to 6 percent slopes, eroded | 108.4 | 5.2% |
| BucC | Bucks silt loam, 6 to 12 percent slopes | 7.6 | 0.4% |
| BucC2 | Bucks silt loam, 6 to 12 percent slopes, eroded | 38.8 | 1.9% |
| ChcA | Chalfont silt loam, 0 to 2 percent slopes | 5.8 | 0.3% |
| ChcB | Chalfont silt loam, 2 to 6 percent slopes | 54.8 | 2.6% |
| DOZA | Doylestown and Reaville variant silt loams, 0 to 2 percent slopes | 64.4 | 3.1% |
| EkbA | Elkton silt loam, 0 to 2 percent slopes | 0.6 | 0.0% |
| KkoE | Klinesville channery loam, 18 to 35 percent slopes | 1.8 | 0.1% |
| MbpB | Matapeake loam, 2 to 5 percent slopes | 45.2 | 2.2% |
| MBYB | Mattapex and Bertie loams, 0 to 5 percent slopes | 0.3 | 0.0% |
| PeoB | Penn channery silt loam, 2 to 6 percent slopes | 8.2 | 0.4% |
| PeoC | Penn channery silt loam, 6 to 12 percent slopes | 19.0 | 0.9% |
| PeoD | Penn channery silt loam, 12 to 18 percent slopes | 0.3 | 0.0% |
| QukB | Quakertown silt loam, 2 to 6 percent slopes | 421.6 | 20.2% |
| QukB2 | Quakertown silt loam, 2 to 6 percent slopes, eroded | 124.3 | 6.0% |
| QukC | Quakertown silt loam, 6 to 12 percent slopes | 69.6 | 3.3% |

| Mercer County, New Jersey (NJ021) | | | |
|---|---|---|---|
| **Map Unit Symbol** | **Map Unit Name** | **Acres in AOI** | **Percent of AOI** |
| QukC2 | Quakertown silt loam, 6 to 12 percent slopes, eroded | 105.7 | 5.1% |
| QumD2 | Quakertown channery silt loam, 12 to 18 percent slopes, eroded | 46.5 | 2.2% |
| REFA | Readington and Abbottstown silt loams, 0 to 2 percent slopes | 18.8 | 0.9% |
| REFB | Readington and Abbottstown silt loams, 2 to 6 percent slopes | 69.3 | 3.3% |
| REFB2 | Readington and Abbottstown silt loams, 2 to 6 percent slopes, eroded | 18.2 | 0.9% |
| REFC2 | Readington and Abbottstown silt loams, 6 to 12 percent slopes, eroded | 3.8 | 0.2% |
| RehA | Reaville silt loam, 0 to 2 percent slopes | 0.9 | 0.0% |
| RehB | Reaville silt loam, 2 to 6 percent slopes | 2.1 | 0.1% |
| RorAt | Rowland silt loam, 0 to 2 percent slopes, frequently flooded | 21.3 | 1.0% |
| SacB | Sassafras sandy loam, 2 to 5 percent slopes, Northern Coastal Plain | 15.7 | 0.8% |
| UdbB | Udorthents, bedrock substratum, 0 to 8 percent slopes | 517.2 | 24.8% |
| UdstB | Udorthents, stratified substratum, 0 to 8 percent slopes | 25.9 | 1.2% |
| WATER | Water | 2.9 | 0.1% |
| **Totals for Area of Interest** | | **2,085.8** | **100.0%** |

# Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class.

Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. 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 important soil properties and qualities.

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, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The

pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

# Mercer County, New Jersey

## BhmC2—Birdsboro loam, 6 to 12 percent slopes, eroded

### Map Unit Setting

*National map unit symbol:* 1lrcc
*Elevation:* 200 to 1,200 feet
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Birdsboro, eroded, and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Birdsboro, Eroded

#### Setting

*Landform:* Stream terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Riser
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Old alluvium derived from sandstone and siltstone and/or shale

#### Typical profile

*Ap - 0 to 8 inches:* loam
*E - 8 to 15 inches:* silt loam
*Bt - 15 to 22 inches:* silt loam
*BC - 22 to 32 inches:* silt loam
*2C - 32 to 48 inches:* sandy loam
*2R - 48 to 80 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 6 to 12 percent
*Depth to restrictive feature:* 48 to 60 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 6.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* B
*Hydric soil rating:* No

### Minor Components

#### Rowland, frequently flooded

*Percent of map unit:* 5 percent
*Landform:* Flood plains
*Down-slope shape:* Concave
*Across-slope shape:* Linear
*Hydric soil rating:* No

#### Bucks, eroded

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

#### Penn

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

## BHRSB—Birdsboro sandy subsoil variant soils, 2 to 6 percent slopes

### Map Unit Setting

*National map unit symbol:* 4jlt
*Elevation:* 250 to 950 feet
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Birdsboro, sandy subsoil, and similar soils:* 45 percent
*Birdsboro, sandy subsoil, and similar soils:* 40 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Birdsboro, Sandy Subsoil

#### Setting

*Landform:* Paleoterraces
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Old alluvium derived from sandstone and siltstone and/or shale

**Typical profile**

*Ap - 0 to 9 inches:* loam
*Bt - 9 to 16 inches:* fine sandy loam
*C - 16 to 34 inches:* fine sandy loam
*2R - 34 to 80 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* About 18 to 48 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 5.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* B
*Hydric soil rating:* No

## Description of Birdsboro, Sandy Subsoil

**Setting**

*Landform:* Paleoterraces
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Old alluvium derived from sandstone and siltstone and/or shale

**Typical profile**

*Ap - 0 to 9 inches:* sandy loam
*Bt - 9 to 16 inches:* fine sandy loam
*C - 16 to 34 inches:* fine sandy loam
*2R - 34 to 80 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 6.00 in/hr)
*Depth to water table:* About 18 to 48 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 4.8 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* B
*Hydric soil rating:* No

### Minor Components

#### Rowland, frequently flooded

*Percent of map unit:* 5 percent
*Landform:* Flood plains
*Down-slope shape:* Concave
*Across-slope shape:* Linear
*Hydric soil rating:* No

#### Penn

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

#### Bucks

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

## BHRSC—Birdsboro sandy subsoil variant soils, 6 to 12 percent slopes

### Map Unit Setting

*National map unit symbol:* 1kj0q
*Elevation:* 250 to 950 feet
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Birdsboro, sandy subsoil, and similar soils:* 45 percent
*Birdsboro, sandy subsoil, and similar soils:* 40 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Birdsboro, Sandy Subsoil

#### Setting

*Landform:* Paleoterraces
*Down-slope shape:* Linear
*Across-slope shape:* Linear

*Parent material:* Old alluvium derived from sandstone and siltstone and/or shale

**Typical profile**

*Ap - 0 to 6 inches:* loam
*Bt - 6 to 16 inches:* fine sandy loam
*C - 16 to 34 inches:* fine sandy loam
*2R - 34 to 80 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 6 to 12 percent
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* About 18 to 48 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 5.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* B
*Hydric soil rating:* No

### Description of Birdsboro, Sandy Subsoil

**Setting**

*Landform:* Paleoterraces
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Old alluvium derived from sandstone and siltstone and/or shale

**Typical profile**

*Ap - 0 to 6 inches:* sandy loam
*Bt - 6 to 16 inches:* fine sandy loam
*C - 16 to 34 inches:* fine sandy loam
*2R - 34 to 80 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 6 to 12 percent
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 6.00 in/hr)
*Depth to water table:* About 18 to 48 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 4.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* B
*Hydric soil rating:* No

### Minor Components

#### Penn

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

#### Bucks

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

#### Rowland, frequently flooded

*Percent of map unit:* 5 percent
*Landform:* Flood plains
*Down-slope shape:* Concave
*Across-slope shape:* Linear
*Hydric soil rating:* No

## BoyAt—Bowmansville silt loam, 0 to 2 percent slopes, frequently flooded

### Map Unit Setting

*National map unit symbol:* 1hxs0
*Elevation:* 200 to 1,000 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Farmland of statewide importance, if drained

### Map Unit Composition

*Bowmansville, frequently flooded, and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Bowmansville, Frequently Flooded

#### Setting

*Landform:* Flood plains
*Landform position (three-dimensional):* Talf

*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Recent deposits of loamy alluvium

**Typical profile**

*Ap - 0 to 9 inches:* silt loam
*Ag - 9 to 17 inches:* silt loam
*Bg1 - 17 to 26 inches:* clay loam
*Bg2 - 26 to 38 inches:* sandy clay loam
*Cg - 38 to 47 inches:* fine sandy loam
*2C - 47 to 60 inches:* stratified gravel to sand

**Properties and qualities**

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Poorly drained
*Runoff class:* Negligible
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)
*Depth to water table:* About 0 to 12 inches
*Frequency of flooding:* Frequent
*Frequency of ponding:* Frequent
*Available water storage in profile:* Moderate (about 8.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 6w
*Hydrologic Soil Group:* B/D
*Hydric soil rating:* Yes

## Minor Components

**Fluvaquents, loamy, frequently flooded**

*Percent of map unit:* 5 percent
*Landform:* Flood plains
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* Yes

**Rowland, frequently flooded**

*Percent of map unit:* 5 percent
*Landform:* Flood plains
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Raritan, rarely flooded**

*Percent of map unit:* 5 percent
*Landform:* Stream terraces
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

## BucB—Bucks silt loam, 2 to 6 percent slopes

### Map Unit Setting

*National map unit symbol:* 1kj11
*Elevation:* 250 to 1,000 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Bucks and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Bucks

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Silty noncalcareous loess over residuum weathered from sandstone and shale

#### Typical profile

*Ap - 0 to 8 inches:* silt loam
*E - 8 to 13 inches:* silt loam
*BE - 13 to 18 inches:* silt loam
*Bt - 18 to 27 inches:* silt loam
*2C - 27 to 48 inches:* very channery silt loam
*2R - 48 to 80 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* 39 to 59 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 7.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* B

*Hydric soil rating:* No

### Minor Components

#### Readington

*Percent of map unit:* 5 percent
*Landform:* Hillsides
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

#### Abbottstown

*Percent of map unit:* 5 percent
*Landform:* Drainageways
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Hydric soil rating:* No

#### Penn

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

## BucB2—Bucks silt loam, 2 to 6 percent slopes, eroded

### Map Unit Setting

*National map unit symbol:* 1lrjs
*Elevation:* 250 to 1,000 feet
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Bucks, eroded, and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Bucks, Eroded

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Interfluve
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Silty noncalcareous loess over residuum weathered from sandstone and shale

**Typical profile**

*Ap - 0 to 7 inches:* silt loam
*E - 7 to 13 inches:* silt loam
*BE - 13 to 18 inches:* silt loam
*Bt - 18 to 27 inches:* silt loam
*2C - 27 to 48 inches:* very channery silt loam
*2R - 48 to 80 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* 39 to 59 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 7.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* B
*Hydric soil rating:* No

**Minor Components**

**Reaville**

*Percent of map unit:* 5 percent
*Landform:* Interfluves
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Readington**

*Percent of map unit:* 5 percent
*Landform:* Hillsides
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Penn**

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Summit
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex

*Hydric soil rating:* No

## BucC—Bucks silt loam, 6 to 12 percent slopes

### Map Unit Setting

*National map unit symbol:* 1lrjr
*Elevation:* 250 to 1,000 feet
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Bucks and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Bucks

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Silty noncalcareous loess over residuum weathered from sandstone and shale

#### Typical profile

*Ap - 0 to 8 inches:* silt loam
*E - 8 to 11 inches:* silt loam
*BE - 11 to 18 inches:* silt loam
*Bt - 18 to 27 inches:* silt loam
*2C - 27 to 48 inches:* very channery silt loam
*2R - 48 to 80 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 6 to 12 percent
*Depth to restrictive feature:* 39 to 59 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 7.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* B
*Hydric soil rating:* No

### Minor Components

#### Reaville

*Percent of map unit:* 5 percent
*Landform:* Interfluves
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Hydric soil rating:* No

#### Readington

*Percent of map unit:* 5 percent
*Landform:* Hillsides
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

#### Penn

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

## BucC2—Bucks silt loam, 6 to 12 percent slopes, eroded

### Map Unit Setting

*National map unit symbol:* 1lrjt
*Elevation:* 250 to 1,300 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Bucks, eroded, and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Bucks, Eroded

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Silty noncalcareous loess over residuum weathered from sandstone and shale

**Typical profile**

*Ap - 0 to 8 inches:* silt loam
*BA - 8 to 12 inches:* silt loam
*Bw - 12 to 21 inches:* silt loam
*BC - 21 to 32 inches:* silt loam
*C - 32 to 44 inches:* channery loam
*R - 44 to 80 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 6 to 12 percent
*Depth to restrictive feature:* 39 to 59 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 8.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* B
*Hydric soil rating:* No

**Minor Components**

**Readington**

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Penn**

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Klinesville**

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear

*Hydric soil rating:* No

## ChcA—Chalfont silt loam, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol:* 1lrjv
*Elevation:* 0 to 1,000 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Chalfont and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Chalfont

#### Setting

*Landform:* Flats
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Silty noncalcareous loess over residuum weathered from sandstone and shale

#### Typical profile

*A - 0 to 4 inches:* silt loam
*E - 4 to 9 inches:* silt loam
*Bt - 9 to 26 inches:* silty clay loam
*Bx - 26 to 42 inches:* silty clay loam
*C - 42 to 50 inches:* very channery silt loam
*R - 50 to 80 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* 15 to 30 inches to fragipan; 42 to 60 inches to lithic bedrock
*Natural drainage class:* Somewhat poorly drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 6 to 18 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 5.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* C
*Hydric soil rating:* No

**Minor Components**

**Reaville**
*Percent of map unit:* 3 percent
*Landform:* Hills
*Landform position (three-dimensional):* Interfluve
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Quakertown**
*Percent of map unit:* 3 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Croton**
*Percent of map unit:* 3 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

**Humaquepts, frequently flooded**
*Percent of map unit:* 2 percent
*Landform:* Flood plains
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* Yes

**Fallsington**
*Percent of map unit:* 2 percent
*Landform:* Flats
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* Yes

**Reaville, poorly drained**
*Percent of map unit:* 2 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

## ChcB—Chalfont silt loam, 2 to 6 percent slopes

### Map Unit Setting

*National map unit symbol:* 1lrjw
*Elevation:* 250 to 950 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Chalfont and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Chalfont

#### Setting

*Landform:* Flats
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Silty noncalcareous loess over residuum weathered from sandstone and shale

#### Typical profile

*A - 0 to 4 inches:* silt loam
*E - 4 to 9 inches:* silt loam
*Bt - 9 to 26 inches:* silty clay loam
*Bx - 26 to 42 inches:* silty clay loam
*C - 42 to 50 inches:* very channery silt loam
*R - 50 to 80 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* 15 to 30 inches to fragipan; 42 to 60 inches to lithic bedrock
*Natural drainage class:* Somewhat poorly drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 6 to 18 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 5.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3w
*Hydrologic Soil Group:* C

*Hydric soil rating:* No

### Minor Components

#### Penn

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

#### Croton

*Percent of map unit:* 5 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

#### Quakertown

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

## DOZA—Doylestown and Reaville variant silt loams, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol:* 1lrdr
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* Farmland of local importance

### Map Unit Composition

*Doylestown and similar soils:* 80 percent
*Reaville, very wet, and similar soils:* 20 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Doylestown

#### Setting

*Landform:* Depressions, flats
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Concave, linear
*Across-slope shape:* Concave, linear
*Parent material:* Silty eolian deposits over shale

**Typical profile**

*A - 0 to 7 inches:* silt loam
*E - 7 to 11 inches:* silt loam
*Btg - 11 to 28 inches:* silt loam
*BCg - 28 to 39 inches:* silt loam
*C1 - 39 to 47 inches:* silt loam
*C2 - 47 to 60 inches:* silt loam

**Properties and qualities**

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Poorly drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 0 to 6 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 7.1 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 5w
*Hydrologic Soil Group:* D
*Hydric soil rating:* Yes

### Description of Reaville, Very Wet

**Setting**

*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Interbedded fine-grained fine-loamy residuum weathered from sandstone and siltstone and/or shale

**Typical profile**

*Ap - 0 to 7 inches:* silt loam
*BA - 7 to 12 inches:* silt loam
*Bt - 12 to 20 inches:* silt loam
*C - 20 to 28 inches:* channery silt loam
*R - 28 to 80 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock
*Natural drainage class:* Poorly drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 12 to 24 inches
*Frequency of flooding:* None

*Frequency of ponding:* None
*Available water storage in profile:* Low (about 3.4 inches)

**Interpretive groups**
*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 4w
*Hydrologic Soil Group:* D
*Hydric soil rating:* Yes

## EkbA—Elkton silt loam, 0 to 2 percent slopes

**Map Unit Setting**
*National map unit symbol:* 4jmh
*Elevation:* 0 to 200 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Farmland of statewide importance, if drained

**Map Unit Composition**
*Elkton and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Elkton**

**Setting**
*Landform:* Marine terraces
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Silty eolian deposits over loamy alluvium and/or loamy marine deposits

**Typical profile**
*Ap - 0 to 6 inches:* silt loam
*BAg - 6 to 10 inches:* silty clay
*Btg - 10 to 25 inches:* clay
*Cg - 25 to 60 inches:* silty clay

**Properties and qualities**
*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Poorly drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)
*Depth to water table:* About 0 to 12 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* High (about 9.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3w
*Hydrologic Soil Group:* C/D
*Hydric soil rating:* Yes

**Minor Components**

**Keyport**

*Percent of map unit:* 5 percent
*Landform:* Depressions, flats
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave, linear
*Across-slope shape:* Concave, linear
*Hydric soil rating:* No

**Woodstown**

*Percent of map unit:* 5 percent
*Landform:* Drainageways, flats
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Concave, linear
*Hydric soil rating:* No

**Fallsington**

*Percent of map unit:* 5 percent
*Landform:* Depressions, flats
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave, linear
*Across-slope shape:* Concave, linear
*Hydric soil rating:* Yes

## KkoE—Klinesville channery loam, 18 to 35 percent slopes

**Map Unit Setting**

*National map unit symbol:* 1kj17
*Elevation:* 250 to 1,300 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Klinesville and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Klinesville

### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Shoulder
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Fine-loamy residuum weathered from shale

### Typical profile

*Ap - 0 to 3 inches:* channery loam
*B - 3 to 10 inches:* channery loam
*C - 10 to 14 inches:* very channery loam
*R - 14 to 80 inches:* weathered bedrock

### Properties and qualities

*Slope:* 18 to 35 percent
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock
*Natural drainage class:* Somewhat excessively drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Very low (about 1.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* D
*Hydric soil rating:* No

## Minor Components

### Abbottstown

*Percent of map unit:* 4 percent
*Landform:* Hillslopes
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

### Readington

*Percent of map unit:* 4 percent
*Landform:* Hillsides
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

### Nixon

*Percent of map unit:* 4 percent
*Landform:* Flats
*Down-slope shape:* Linear

*Across-slope shape:* Linear
*Hydric soil rating:* No

**Penn**

*Percent of map unit:* 3 percent
*Landform:* Hills
*Landform position (two-dimensional):* Summit
*Landform position (three-dimensional):* Interfluve
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

## MbpB—Matapeake loam, 2 to 5 percent slopes

### Map Unit Setting

*National map unit symbol:* 4jng
*Elevation:* 10 to 120 feet
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Matapeake and similar soils:* 90 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Matapeake

**Setting**

*Landform:* Interfluves
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Parent material:* Silty eolian deposits over marine deposits and/or coarse fluviomarine deposits

**Typical profile**

*Ap - 0 to 8 inches:* loam
*AB - 8 to 15 inches:* loam
*BA - 15 to 19 inches:* loam
*Bt - 19 to 27 inches:* clay loam
*BC - 27 to 41 inches:* loam
*2C - 41 to 60 inches:* stratified sand to silty clay

**Properties and qualities**

*Slope:* 2 to 5 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 2.00 in/hr)

*Depth to water table:* About 48 to 122 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* High (about 10.9 inches)

**Interpretive groups**
*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* B
*Hydric soil rating:* No

**Minor Components**

**Woodstown**
*Percent of map unit:* 5 percent
*Landform:* Low hills
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Mattapex**
*Percent of map unit:* 5 percent
*Landform:* Terraces, flats
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

## MBYB—Mattapex and Bertie loams, 0 to 5 percent slopes

**Map Unit Setting**
*National map unit symbol:* 1lrq6
*Elevation:* 0 to 120 feet
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**
*Mattapex and similar soils:* 50 percent
*Bertie and similar soils:* 40 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Mattapex**

**Setting**
*Landform:* Marine terraces
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Silty eolian deposits over marine deposits and/or coarse fluviomarine deposits

**Typical profile**

*A - 0 to 10 inches:* loam
*AB - 10 to 13 inches:* loam
*BA - 13 to 19 inches:* loam
*Bt - 19 to 33 inches:* silt loam
*2C - 33 to 41 inches:* sandy loam
*2C - 41 to 60 inches:* stratified sand to silty clay

**Properties and qualities**

*Slope:* 0 to 5 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Moderately well drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 2.00 in/hr)
*Depth to water table:* About 18 to 42 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 8.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

## Description of Bertie

**Setting**

*Landform:* Marine terraces
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Loamy marine deposits

**Typical profile**

*Ap - 0 to 12 inches:* loam
*BA - 12 to 16 inches:* silt loam
*Btg - 16 to 27 inches:* silt loam
*BCg - 27 to 32 inches:* silt loam
*Cg - 32 to 60 inches:* stratified sand to fine sandy loam

**Properties and qualities**

*Slope:* 0 to 5 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Moderately well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* About 18 to 30 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 6.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2w
*Hydrologic Soil Group:* B

*Hydric soil rating:* No

**Minor Components**

**Keyport**

*Percent of map unit:* 5 percent
*Landform:* Knolls
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Othello**

*Percent of map unit:* 5 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

## PeoB—Penn channery silt loam, 2 to 6 percent slopes

**Map Unit Setting**

*National map unit symbol:* 4jnw
*Elevation:* 250 to 1,300 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Penn and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Penn**

**Setting**

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Fine-loamy residuum weathered from acid reddish shale, siltstone, and fine-grain sandstone

**Typical profile**

*Ap - 0 to 9 inches:* channery silt loam
*Bt - 9 to 22 inches:* channery silt loam

*C - 22 to 30 inches:* very channery loam
*R - 30 to 80 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Very low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 6.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 4.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

**Minor Components**

**Klinesville**

*Percent of map unit:* 5 percent
*Landform:* Hills
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Bucks**

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Summit
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Reaville**

*Percent of map unit:* 5 percent
*Landform:* Interfluves
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Hydric soil rating:* No

## PeoC—Penn channery silt loam, 6 to 12 percent slopes

**Map Unit Setting**

*National map unit symbol:* 4jnx
*Elevation:* 250 to 1,300 feet

*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Penn and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Penn**

**Setting**

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Fine-loamy residuum weathered from acid reddish shale, siltstone, and fine-grain sandstone

**Typical profile**

*Ap - 0 to 8 inches:* channery silt loam
*Bt - 8 to 20 inches:* channery silt loam
*C - 20 to 25 inches:* very channery silt loam
*R - 25 to 80 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 6 to 12 percent
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 6.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 3.5 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

**Minor Components**

**Klinesville**

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Shoulder
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Reaville**

*Percent of map unit:* 5 percent

*Landform:* Interfluves
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Readington**

*Percent of map unit:* 5 percent
*Landform:* Hillsides
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

## PeoD—Penn channery silt loam, 12 to 18 percent slopes

### Map Unit Setting

*National map unit symbol:* 4jny
*Elevation:* 250 to 1,300 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Penn and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Penn

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Fine-loamy residuum weathered from acid reddish shale, siltstone, and fine-grain sandstone

#### Typical profile

*Ap - 0 to 9 inches:* channery silt loam
*Bt - 9 to 22 inches:* channery silt loam
*C - 22 to 30 inches:* very channery loam
*R - 30 to 80 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 12 to 18 percent
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 6.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 4.2 inches)

**Interpretive groups**
*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 4e
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

**Minor Components**

**Klinesville**
*Percent of map unit:* 5 percent
*Landform:* Hills
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Bucks**
*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Reaville**
*Percent of map unit:* 5 percent
*Landform:* Interfluves
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Hydric soil rating:* No

## QukB—Quakertown silt loam, 2 to 6 percent slopes

**Map Unit Setting**
*National map unit symbol:* 4jp3
*Elevation:* 300 to 1,000 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**
*Quakertown and similar soils:* 85 percent
*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Quakertown

### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Summit
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Fine-grained fine-loamy residuum weathered from sandstone and siltstone

### Typical profile

*Ap - 0 to 8 inches:* silt loam
*E - 8 to 12 inches:* silt loam
*BE - 12 to 20 inches:* silt loam
*Bt - 20 to 36 inches:* silty clay loam
*C - 36 to 56 inches:* channery clay loam
*R - 56 to 80 inches:* unweathered bedrock

### Properties and qualities

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* 39 to 59 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* High (about 9.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

## Minor Components

### Lehigh

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Hydric soil rating:* No

### Chalfont

*Percent of map unit:* 5 percent
*Landform:* Flats
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Bucks**

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

## QukB2—Quakertown silt loam, 2 to 6 percent slopes, eroded

**Map Unit Setting**

*National map unit symbol:* 4jks
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Quakertown, eroded, and similar soils:* 90 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Quakertown, Eroded**

**Setting**

*Landform:* Hills
*Landform position (two-dimensional):* Summit
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Fine-grained fine-loamy residuum weathered from sandstone and siltstone

**Typical profile**

*Ap - 0 to 8 inches:* silt loam
*AB - 8 to 10 inches:* silt loam
*Bt - 10 to 29 inches:* silt loam
*C - 29 to 42 inches:* silt loam
*R - 42 to 80 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* 39 to 59 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None

*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 7.8 inches)

**Interpretive groups**
*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

**Minor Components**

**Chalfont**
*Percent of map unit:* 5 percent
*Landform:* Flats
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Bucks**
*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

## QukC—Quakertown silt loam, 6 to 12 percent slopes

**Map Unit Setting**
*National map unit symbol:* 4jp4
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**
*Quakertown and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Quakertown**

**Setting**
*Landform:* Hills
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex

*Parent material:* Fine-grained fine-loamy residuum weathered from sandstone and siltstone

**Typical profile**

*Ap - 0 to 8 inches:* silt loam
*AB - 8 to 10 inches:* silt loam
*Bt - 10 to 29 inches:* silt loam
*C - 29 to 42 inches:* silt loam
*R - 42 to 80 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 6 to 12 percent
*Depth to restrictive feature:* 39 to 59 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 7.8 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

**Minor Components**

**Chalfont, stony**

*Percent of map unit:* 5 percent
*Landform:* Flats
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Croton**

*Percent of map unit:* 5 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

**Lawrenceville**

*Percent of map unit:* 5 percent
*Landform:* Flats
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

## QukC2—Quakertown silt loam, 6 to 12 percent slopes, eroded

### Map Unit Setting

*National map unit symbol:* 4jp5
*Elevation:* 250 to 950 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Quakertown, eroded, and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Quakertown, Eroded

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Fine-grained fine-loamy residuum weathered from sandstone and siltstone

#### Typical profile

*Ap - 0 to 8 inches:* silt loam
*E - 8 to 12 inches:* silt loam
*BE - 12 to 20 inches:* silt loam
*Bt - 20 to 36 inches:* silty clay loam
*C - 36 to 56 inches:* channery clay loam
*R - 56 to 80 inches:* unweathered bedrock

#### Properties and qualities

*Slope:* 6 to 12 percent
*Depth to restrictive feature:* 39 to 59 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* High (about 9.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* C

*Hydric soil rating:* No

**Minor Components**

**Chalfont**

*Percent of map unit:* 5 percent
*Landform:* Flats
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Penn**

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Lansdale**

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

## QumD2—Quakertown channery silt loam, 12 to 18 percent slopes, eroded

**Map Unit Setting**

*National map unit symbol:* 4jp9
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Quakertown, eroded, and similar soils:* 90 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Quakertown, Eroded**

**Setting**

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Fine-grained fine-loamy residuum weathered from sandstone and siltstone

**Typical profile**

*Ap - 0 to 8 inches:* channery silt loam
*Bt - 8 to 29 inches:* silt loam
*C - 29 to 42 inches:* silt loam
*R - 42 to 80 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 12 to 18 percent
*Depth to restrictive feature:* 39 to 59 inches to lithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 7.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 4e
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

## Minor Components

**Bucks, eroded**

*Percent of map unit:* 5 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Chalfont**

*Percent of map unit:* 5 percent
*Landform:* Flats
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

## REFA—Readington and Abbottstown silt loams, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol:* 4jpb
*Elevation:* 300 to 2,000 feet
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Readington and similar soils:* 45 percent
*Abbottstown and similar soils:* 35 percent
*Minor components:* 20 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Readington

#### Setting

*Landform:* Hillsides
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Fine-loamy residuum weathered from acid red shale, siltstone, and fine-grain sandstone

#### Typical profile

*Ap - 0 to 7 inches:* silt loam
*BA - 7 to 15 inches:* silt loam
*Bt - 15 to 24 inches:* silt loam
*C - 24 to 28 inches:* silt loam
*2C - 28 to 40 inches:* very channery silt loam
*2R - 40 to 80 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* 39 to 60 inches to lithic bedrock
*Natural drainage class:* Moderately well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 18 to 36 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 4.8 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2w

*Hydrologic Soil Group:* C
*Hydric soil rating:* No

### Description of Abbottstown

#### Setting

*Landform:* Depressions, flats
*Landform position (two-dimensional):* Toeslope, footslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave, linear
*Across-slope shape:* Concave, linear
*Parent material:* Fine-loamy residuum weathered from acid red shale, siltstone, and fine-grain sandstone

#### Typical profile

*Ap - 0 to 7 inches:* silt loam
*Bt - 7 to 25 inches:* silt loam
*Cg - 25 to 33 inches:* silt loam
*2Cg - 33 to 40 inches:* very channery silt loam
*2R - 40 to 80 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* 39 to 60 inches to lithic bedrock
*Natural drainage class:* Somewhat poorly drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 7 to 18 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 6.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3w
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

### Minor Components

#### Doylestown

*Percent of map unit:* 10 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

#### Lawrenceville

*Percent of map unit:* 5 percent
*Landform:* Flats
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Watchung**

*Percent of map unit:* 5 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

## REFB—Readington and Abbottstown silt loams, 2 to 6 percent slopes

**Map Unit Setting**

*National map unit symbol:* 4jpc
*Elevation:* 300 to 2,000 feet
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Readington and similar soils:* 45 percent
*Abbottstown and similar soils:* 35 percent
*Minor components:* 20 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Readington**

**Setting**

*Landform:* Hillsides
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Fine-loamy residuum weathered from acid red shale, siltstone, and fine-grain sandstone

**Typical profile**

*Ap - 0 to 7 inches:* silt loam
*BA - 7 to 15 inches:* silt loam
*Bt - 15 to 24 inches:* silt loam
*C - 24 to 28 inches:* silt loam
*2C - 28 to 40 inches:* very channery silt loam
*2R - 40 to 80 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* 39 to 60 inches to lithic bedrock
*Natural drainage class:* Moderately well drained
*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 18 to 36 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 4.8 inches)

**Interpretive groups**
*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

**Description of Abbottstown**

**Setting**
*Landform:* Drainageways
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Parent material:* Fine-loamy residuum weathered from acid red shale, siltstone, and fine-grain sandstone

**Typical profile**
*Ap - 0 to 7 inches:* silt loam
*Bt - 7 to 25 inches:* silt loam
*Cg - 25 to 33 inches:* silt loam
*2Cg - 33 to 40 inches:* very channery silt loam
*R - 40 to 80 inches:* weathered bedrock

**Properties and qualities**
*Slope:* 2 to 6 percent
*Depth to restrictive feature:* 39 to 60 inches to lithic bedrock
*Natural drainage class:* Somewhat poorly drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 7 to 18 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 6.7 inches)

**Interpretive groups**
*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3w
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

**Minor Components**

**Doylestown**
*Percent of map unit:* 10 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave

*Across-slope shape:* Concave
*Hydric soil rating:* Yes

**Watchung**

*Percent of map unit:* 5 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

**Lawrenceville**

*Percent of map unit:* 5 percent
*Landform:* Flats
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

## REFB2—Readington and Abbottstown silt loams, 2 to 6 percent slopes, eroded

### Map Unit Setting

*National map unit symbol:* 4jpd
*Elevation:* 300 to 2,000 feet
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Readington, eroded, and similar soils:* 45 percent
*Abbottstown, eroded, and similar soils:* 35 percent
*Minor components:* 20 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Readington, Eroded

**Setting**

*Landform:* Hillsides
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Fine-loamy residuum weathered from acid red shale, siltstone, and fine-grain sandstone

**Typical profile**

*A - 0 to 6 inches:* silt loam

*BA - 6 to 15 inches:* silt loam
*B - 15 to 24 inches:* silt loam
*C - 24 to 28 inches:* silt loam
*2C - 28 to 40 inches:* very channery silt loam
*2R - 40 to 80 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* 39 to 60 inches to lithic bedrock
*Natural drainage class:* Moderately well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 18 to 36 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 4.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

## Description of Abbottstown, Eroded

**Setting**

*Landform:* Drainageways
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Parent material:* Fine-loamy residuum weathered from acid red shale, siltstone, and fine-grain sandstone

**Typical profile**

*Ap - 0 to 6 inches:* silt loam
*Bt - 6 to 25 inches:* silt loam
*Cg - 25 to 33 inches:* silt loam
*2Cg - 33 to 40 inches:* very channery silt loam
*R - 40 to 80 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* 39 to 60 inches to lithic bedrock
*Natural drainage class:* Somewhat poorly drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 7 to 18 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 6.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* C
*Hydric soil rating:* No

### Minor Components

#### Doylestown

*Percent of map unit:* 10 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

#### Watchung

*Percent of map unit:* 5 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

#### Lawrenceville, eroded

*Percent of map unit:* 5 percent
*Landform:* Flats
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

## REFC2—Readington and Abbottstown silt loams, 6 to 12 percent slopes, eroded

### Map Unit Setting

*National map unit symbol:* 4jpf
*Elevation:* 300 to 1,000 feet
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Readington, eroded, and similar soils:* 60 percent
*Abbottstown, eroded, and similar soils:* 40 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Readington, Eroded

#### Setting

*Landform:* Hillsides
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Fine-loamy residuum weathered from acid red shale, siltstone, and fine-grain sandstone

#### Typical profile

*Ap - 0 to 5 inches:* silt loam
*BA - 5 to 15 inches:* silt loam
*Bt - 15 to 24 inches:* silt loam
*C - 24 to 28 inches:* silt loam
*2C - 28 to 40 inches:* channery silt loam
*2R - 40 to 80 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 6 to 12 percent
*Depth to restrictive feature:* 39 to 60 inches to lithic bedrock
*Natural drainage class:* Moderately well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 18 to 36 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 4.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

### Description of Abbottstown, Eroded

#### Setting

*Landform:* Drainageways
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Parent material:* Fine-loamy residuum weathered from acid red shale, siltstone, and fine-grain sandstone

#### Typical profile

*Ap - 0 to 5 inches:* silt loam
*Bt - 5 to 25 inches:* silt loam
*Cg - 25 to 33 inches:* silt loam
*2Cg - 33 to 40 inches:* very channery silt loam
*R - 40 to 80 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* 39 to 60 inches to lithic bedrock
*Natural drainage class:* Somewhat poorly drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 7 to 18 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 6.6 inches)

**Interpretive groups**
*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

## RehA—Reaville silt loam, 0 to 2 percent slopes

**Map Unit Setting**
*National map unit symbol:* 4jpg
*Elevation:* 300 to 1,000 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**
*Reaville and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Reaville**

**Setting**
*Landform:* Interfluves
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Parent material:* Interbedded fine-grained fine-loamy residuum weathered from sandstone and siltstone and/or shale

**Typical profile**
*A - 0 to 10 inches:* silt loam
*BA - 10 to 15 inches:* channery silt loam
*Bt - 15 to 22 inches:* channery silt loam
*C - 22 to 28 inches:* very channery silt loam
*R - 28 to 80 inches:* weathered bedrock

**Properties and qualities**
*Slope:* 0 to 2 percent
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock
*Natural drainage class:* Somewhat poorly drained

*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 12 to 24 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 3.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3w
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

## Minor Components

### Readington

*Percent of map unit:* 4 percent
*Landform:* Hillsides
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

### Reaville, poorly drained

*Percent of map unit:* 4 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

### Bucks

*Percent of map unit:* 4 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

### Croton

*Percent of map unit:* 3 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

## RehB—Reaville silt loam, 2 to 6 percent slopes

### Map Unit Setting

*National map unit symbol:* 4jph
*Elevation:* 300 to 1,300 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Reaville and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Reaville

#### Setting

*Landform:* Interfluves
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Parent material:* Interbedded fine-grained fine-loamy residuum weathered from sandstone and siltstone and/or shale

#### Typical profile

*Ap - 0 to 8 inches:* silt loam
*BA - 8 to 13 inches:* silt loam
*Bt - 13 to 19 inches:* silt loam
*C - 19 to 23 inches:* channery silt loam
*R - 23 to 80 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock
*Natural drainage class:* Somewhat poorly drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.06 to 2.00 in/hr)
*Depth to water table:* About 12 to 24 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 4.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3w
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

### Minor Components

#### Readington

*Percent of map unit:* 4 percent
*Landform:* Hillsides
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

#### Bucks

*Percent of map unit:* 4 percent
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

#### Klinesville

*Percent of map unit:* 4 percent
*Landform:* Hills
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

#### Croton

*Percent of map unit:* 3 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

## RorAt—Rowland silt loam, 0 to 2 percent slopes, frequently flooded

### Map Unit Setting

*National map unit symbol:* 4jpl
*Elevation:* 200 to 1,000 feet
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Rowland, frequently flooded, and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Rowland, Frequently Flooded

### Setting

*Landform:* Flood plains
*Down-slope shape:* Concave
*Across-slope shape:* Linear
*Parent material:* Red and brown fine-loamy alluvium derived from sandstone and shale and/or conglomerate

### Typical profile

*A1 - 0 to 3 inches:* silt loam
*A2 - 3 to 10 inches:* silt loam
*B - 10 to 40 inches:* silt loam
*2C - 40 to 65 inches:* Error

### Properties and qualities

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Moderately well drained
*Runoff class:* Negligible
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 2.00 in/hr)
*Depth to water table:* About 12 to 36 inches
*Frequency of flooding:* Frequent
*Frequency of ponding:* Frequent
*Available water storage in profile:* Moderate (about 7.6 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2w
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

## Minor Components

### Bowmansville, frequently flooded

*Percent of map unit:* 5 percent
*Landform:* Flood plains
*Down-slope shape:* Concave
*Across-slope shape:* Linear
*Hydric soil rating:* Yes

### Birdsboro

*Percent of map unit:* 5 percent
*Landform:* Stream terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Riser
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

### Raritan, rarely flooded

*Percent of map unit:* 5 percent
*Landform:* Stream terraces
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

## SacB—Sassafras sandy loam, 2 to 5 percent slopes, Northern Coastal Plain

### Map Unit Setting

*National map unit symbol:* 2thxd
*Elevation:* 0 to 470 feet
*Mean annual precipitation:* 41 to 49 inches
*Mean annual air temperature:* 53 to 58 degrees F
*Frost-free period:* 190 to 250 days
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Sassafras and similar soils:* 80 percent
*Minor components:* 20 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Sassafras

#### Setting

*Landform:* Flats, fluviomarine terraces
*Landform position (three-dimensional):* Riser, rise
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Loamy fluviomarine deposits

#### Typical profile

*Ap - 0 to 12 inches:* sandy loam
*Bt1 - 12 to 18 inches:* sandy loam
*Bt2 - 18 to 28 inches:* sandy clay loam
*BC - 28 to 40 inches:* loamy sand
*C1 - 40 to 58 inches:* sand
*C2 - 58 to 80 inches:* sand

#### Properties and qualities

*Slope:* 2 to 5 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Moderate (about 7.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 2e
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* B
*Hydric soil rating:* No

**Minor Components**

**Aura**

*Percent of map unit:* 4 percent
*Landform:* Low hills, fluviomarine terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope, nose slope, riser
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Downer**

*Percent of map unit:* 4 percent
*Landform:* Knolls, flats, fluviomarine terraces
*Landform position (two-dimensional):* Summit, shoulder
*Landform position (three-dimensional):* Interfluve, riser, rise
*Down-slope shape:* Convex, linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Woodstown**

*Percent of map unit:* 4 percent
*Landform:* Depressions, flats, broad interstream divides, fluviomarine terraces
*Landform position (two-dimensional):* Footslope, summit
*Landform position (three-dimensional):* Tread, dip, talf
*Down-slope shape:* Concave, linear
*Across-slope shape:* Concave, linear
*Hydric soil rating:* No

**Ingleside**

*Percent of map unit:* 4 percent
*Landform:* Flats
*Landform position (two-dimensional):* Summit
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Fallsington, drained**

*Percent of map unit:* 4 percent
*Landform:* Depressions, swales, flats
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Dip, talf
*Down-slope shape:* Concave, linear
*Across-slope shape:* Concave, linear
*Hydric soil rating:* Yes

## UdbB—Udorthents, bedrock substratum, 0 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 1hxvr
*Elevation:* 300 to 1,300 feet
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Udorthents, bedrock substratum, and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Udorthents, Bedrock Substratum

#### Setting

*Landform:* Low hills
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Loamy lateral spread deposits

#### Typical profile

*C - 0 to 30 inches:* loam
*R - 30 to 80 inches:* unweathered bedrock

#### Properties and qualities

*Slope:* 0 to 8 percent
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock
*Natural drainage class:* Moderately well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 6.00 in/hr)
*Depth to water table:* About 18 to 42 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Low (about 4.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3w
*Hydrologic Soil Group:* D
*Hydric soil rating:* No

### Minor Components

#### Klinesville

*Percent of map unit:* 4 percent
*Landform:* Hills

*Landform position (two-dimensional):* Shoulder
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Reaville**
*Percent of map unit:* 4 percent
*Landform:* Interfluves
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Reaville, poorly drained**
*Percent of map unit:* 4 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

**Ellington, moderately deep**
*Percent of map unit:* 3 percent
*Landform:* Outwash terraces
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

## UdstB—Udorthents, stratified substratum, 0 to 8 percent slopes

### Map Unit Setting
*National map unit symbol:* 4jq2
*Elevation:* 400 to 1,500 feet
*Mean annual precipitation:* 28 to 59 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 161 to 231 days
*Farmland classification:* Not prime farmland

### Map Unit Composition
*Udorthents, stratified substratum, and similar soils:* 95 percent
*Minor components:* 5 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Udorthents, Stratified Substratum

#### Setting
*Landform:* Low hills
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Loamy lateral spread deposits over gravelly lateral spread deposits

**Typical profile**

*A - 0 to 10 inches:* sand
*C - 10 to 72 inches:* gravelly coarse sand

**Properties and qualities**

*Slope:* 0 to 8 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Well drained
*Runoff class:* Very low
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (6.00 to 20.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* Very low (about 2.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3w
*Hydrologic Soil Group:* D
*Hydric soil rating:* No

**Minor Components**

**Urban land**

*Percent of map unit:* 5 percent
*Landform:* Low hills
*Landform position (three-dimensional):* Lower third of mountainflank
*Down-slope shape:* Linear, convex
*Across-slope shape:* Linear
*Hydric soil rating:* Unranked

## WATER—Water

**Map Unit Setting**

*National map unit symbol:* 4jq7
*Mean annual precipitation:* 30 to 64 inches
*Mean annual air temperature:* 46 to 79 degrees F
*Frost-free period:* 131 to 178 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Water:* 100 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

# References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf