



United States
Department of
Agriculture



Natural
Resources
Conservation
Service

In cooperation with
North Carolina Department
of Environment, Health,
and Natural Resources;
North Carolina Agricultural
Research Service; North
Carolina Cooperative
Extension Service;
Franklin Soil and Water
Conservation District; and
Franklin County Board of
Commissioners

Soil Survey of Franklin County, North Carolina



How to Use This Soil Survey

General Soil Map

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

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

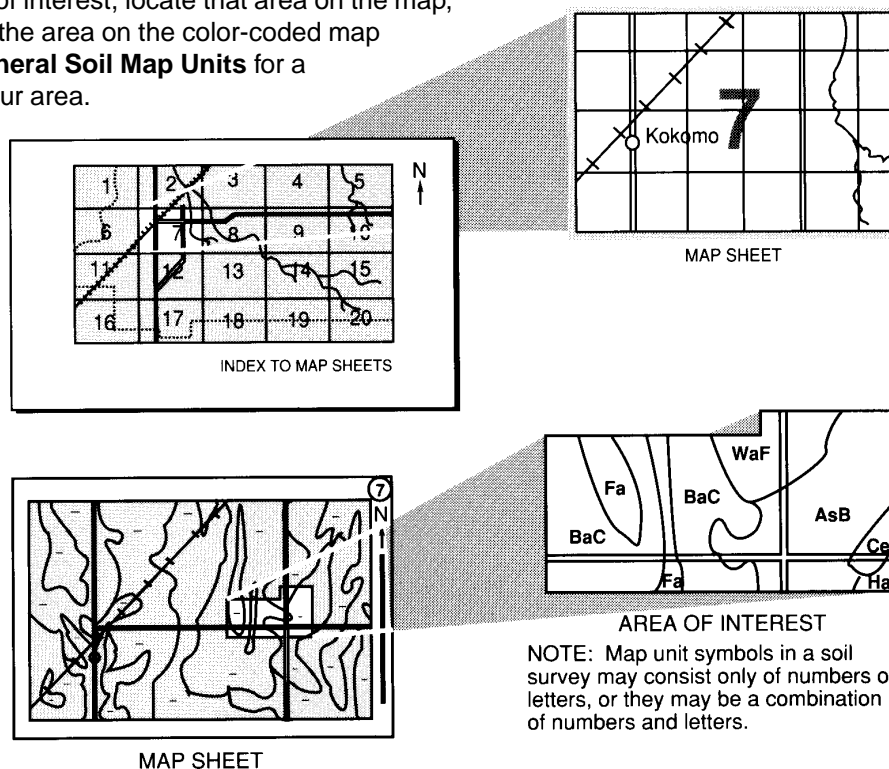
Detailed Soil Maps

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

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

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

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



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

Major fieldwork for this soil survey was completed in 1993. Soil names and descriptions were approved in 1994. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1994. This soil survey was made cooperatively by the Natural Resources Conservation Service; the North Carolina Department of Environment, Health, and Natural Resources; the North Carolina Agricultural Research Service; the North Carolina Cooperative Extension Service; the Franklin Soil and Water Conservation District; and the Franklin County Board of Commissioners. The survey is part of the technical assistance furnished to the Franklin Soil and Water Conservation District. The Franklin County Board of Commissioners provided financial assistance for the survey.

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

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Cover: No-till farming in an area of Wake-Saw-Wedowee complex, 2 to 8 percent slopes, rocky, in the central part of Franklin County.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is <http://www.nrcs.usda.gov> (click on "Technical Resources").

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Foreword

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

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

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

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

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

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Soil Survey of Franklin County, North Carolina

By Sheryl Hallmark Kunickis, Natural Resources Conservation Service

Soils surveyed by L. Lee Mallard, III, Robert H. Ranson, Jr., and Sheryl Hallmark Kunickis, Natural Resources Conservation Service, and Harold L. Kelly and Richard H. Brooks, North Carolina Department of Environment, Health, and Natural Resources

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
North Carolina Department of Environment, Health, and Natural Resources;
North Carolina Agricultural Research Service; North Carolina Cooperative Extension Service; Franklin Soil and Water Conservation District; and Franklin County Board of Commissioners

FRANKLIN COUNTY is located on the northeastern edge of the North Carolina Piedmont Plateau (fig. 1). It is bounded by Wake, Granville, Vance, Warren, and Nash Counties. It consists of 316,755 acres, or about 494 square miles. This acreage includes 315,993 acres of land and 762 acres of water. Elevation in the county ranges from 143 feet along the Tar River near the Nash County line to 562 feet above sea level near the community of Pocomoke, which is in the western part of the county.

In 1990, according to the U.S. Census Bureau, the population of Franklin County was 36,414. Because of rapid economic growth in the southern part of the county, the estimated population for the county in the year 2010 is 44,360. Louisburg, the county seat, has a population of 3,047. It is located in the center of the county.

Approximately 61 percent of the land is forest land. Cropland makes up 29 percent of the land area. The important crops include tobacco, soybeans, and corn. Seven percent of the land is pastureland. The remaining 3 percent is urbanized.

This survey updates the survey of Franklin County published in 1931 (10). It provides more detailed maps on aerial photographs and contains more interpretive information.

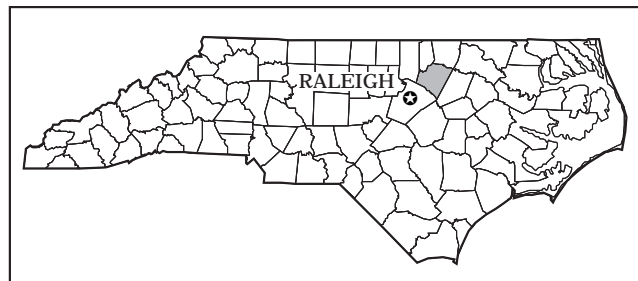


Figure 1.—Location of Franklin County in North Carolina.

General Nature of the County

This section gives general information about Franklin County. It describes the history, economic development, water supply, and climate.

History

In 1779, the State Legislature voted to divide Bute County into two new counties—Franklin County and Warren County (7, 9). Franklin County was formed and named in honor of Benjamin Franklin. During the same year, the legislature authorized the incorporation of

Louisburg, which became the county seat. Louisburg was named in honor of the French king Louis XVI.

The early settlers of Franklin County focused on education, business, and agriculture. Houses, a tavern, a general store, a log courthouse, and the Franklin Academy were built.

Franklin County sided with the Southern cause during the War Between the States. The flag of the Confederacy was made in Franklin County and was first flown in the county courthouse yard on March 18, 1861 (7, 9).

Economic Development

As the population of the survey area increased, it became necessary that the settlers produce their own food, clothing, machinery, and other materials. One of the first industries in the survey area was the meal mill. In 1770, Whittaker's Mill was built. Prior to the Civil War, Franklin County had a snuff factory, which was located south of the old Perry Mill (7, 9).

Before the Revolutionary War and as late as the Civil War, a large tanning establishment and shoemaking factory were operated in the survey area. The area also had a hat-making establishment, which used materials from local furbearers, and a small factory that manufactured felt hats (7, 9).

Around 1800, the cotton gin began to be used in Franklin County. Prior to this, cotton seeds were gathered by hand. The use of the cotton gin produced a boom in the cotton industry in the county. As the population of the county continued to grow, crops such as beans, peas, sweet potatoes, oats, rye, and rice were brought into cultivation. Wild game was the primary source of meat, but pork was produced to a limited extent. Raising cattle for beef was a much later enterprise.

Around 1835, gold was discovered east of the settlement of Wood and a small gold rush began (7, 9). The area was mined through the 1880's, but most of the gold that had been deposited on the area and in the streams had been taken by earlier miners. In the early 1900's, several attempts were made to remove the gold from heavy red clay. Unfortunately, it cost about three dollars to recover two dollars in gold. The mine finally closed in 1936.

After the 1830's, tobacco became increasingly popular (7, 9). One of the first tobacco crops produced in mass quantity consisted of 30,000 hills. This tobacco sold in Richmond for about 7 cents per pound and brought in 273.90 dollars. In the late 1800's, tobacco warehouses were established in Louisburg and Youngsville. Franklinton had a factory that manufactured plug tobacco.

The greatest period of progress in manufacturing followed the construction of the railroad in 1840. Locally produced materials could be easily transported to other markets.

In 1910, the county commissioners appropriated 300 dollars for farm demonstration work in cooperation with the United States Department of Agriculture (7, 9). Agriculture continues to have strong support in Franklin County.

In the 1930's, during the Great Depression, many businesses and banks failed and land was sold to pay taxes. Franklin County struggled to regain its prosperity. Tobacco became a major source of income for farmers in the county and continues to be today.

Although agriculture, lumber, and textiles were historically the main source of industry, the county has become more diversified. Industries in Franklin County now include telecommunications, furniture, wood products, software, metal products fabrication, and plastics recycling.

Water Supply

Franklin County has an abundant water supply. Underground rock yields water to wells through cracks in the soil's subsurface. A drilled well may yield as much as 100 gallons of water per minute.

The Tar River and its numerous tributaries meander through Franklin County. Almost all of the county drains into the Tar River. A small area in the southern part drains into the Little River. There are also several farm and mill ponds and Lake Royale, a large manmade lake located northeast of the Bunn community. Early historians described Franklin County as the best watered county in the United States.

Climate

In Franklin County, summers are hot and generally humid because of moist, maritime air. Winters are moderately cold but short in duration because the mountains to the west protect the survey area against many cold waves. Precipitation is evenly distributed throughout the year and is adequate for all crops.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Louisburg, North Carolina, in the period 1951 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 39 degrees F and the average daily minimum temperature is 25 degrees. The lowest temperature on record, which occurred on January 21, 1985, is -10 degrees. In

summer, the average temperature is 75 degrees and the average daily maximum temperature is 88 degrees. The highest recorded temperature, which occurred on July 29, 1952, is 106 degrees.

Growing degree days are shown in [table 1](#). They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total average annual precipitation is about 46 inches. Of this, 25 inches, or about 53 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 13 inches. The heaviest 1-day rainfall during the period of record was 5.27 inches on August 18, 1955. Thunderstorms occur on about 44 days each year.

The average seasonal snowfall is about 4 inches. The greatest snow depth at any one time during the period of record was 9 inches. On the average, 2 days of the year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was more than 9 inches.

The average relative humidity in midafternoon is about 54 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 61 percent of the time possible in summer and 55 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 9 miles per hour, in spring.

How This Survey Was Made

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

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the

geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they 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-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 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 the soils. After describing the soils and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area are generally collected for laboratory analyses and for engineering tests. The data from these analyses and tests and from field-observed characteristics and soil properties are used to predict behavior of the soils under different uses. Interpretations are field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled

from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

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

Survey Procedures

The general procedures followed in making this survey are described in the "National Soil Survey Handbook" of the Natural Resources Conservation Service and in the "Soil Survey Manual" (12, 16).

Before fieldwork began, preliminary boundaries of slopes and landforms were plotted stereoscopically on aerial photographs taken in 1982 at a scale of 1:24,000. United States Geological Survey geologic and topographic maps at a scale of 1:24,000 were also used. Map units were then designed according to the pattern of soils interpreted from photographs, maps, and field observations.

Traverses were made on foot. The soils were examined at intervals ranging from a few hundred feet

to about $\frac{1}{4}$ mile, depending on the landscape and soil pattern. Observations of special features, such as landforms, vegetation, and evidence of flooding, were made continuously without regard to spacing. Where soil profiles were readily observable, such as along recently constructed access roads and along logging roads, observations of the content of rock fragments, depth to bedrock, depth of rooting, and depth of the underlying material were also recorded. Soil boundaries were determined on the basis of soil examinations, observations, and photo interpretations. In many areas, such as those where moderately steep slopes intersect with flood plains, these boundaries are precise because of an abrupt change in the landform. In more complex areas, soil boundaries were plotted stereoscopically on the basis of parent material, landform, and relief. Many of these boundaries cannot be exact because they fall within a zone of gradual change between landforms, such as an area where a flood plain joins an upland, or where the Coastal Plain joins the Piedmont. Much intermingling of the soils occurs in these zones. The soils were examined with the aid of a hand probe, a bucket auger, or a spade to a depth of about 3 to 5 feet. The typical pedons were observed in pits dug by hand.

Samples for chemical and physical analyses were taken from the site of the typical pedon of some of the major soils in the survey area. Most of the analyses were made by the Soil Survey Laboratory, Lincoln, Nebraska. Some soils were analyzed by the North Carolina State University Soils Laboratory, Raleigh, North Carolina. Commonly used laboratory procedures were followed (13).

After completion of the soil mapping on aerial photographs, map unit delineations were transferred by hand to orthophotographs at a scale of 1:24,000. Surface drainage and cultural features were transferred from 7.5-minute topographic maps of the United States Geological Survey.

General Soil Map Units

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

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

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

1. Wedowee-Helena

Gently sloping to strongly sloping, well drained and moderately well drained soils that have a loamy surface layer and a clayey subsoil; on Piedmont uplands

Setting

Location in the survey area: Throughout the county

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Wedowee—convex side slopes;
Helena—concave head slopes and slightly concave slopes

Slope range: 2 to 15 percent

Composition

Percent of the survey area: 35

Wedowee soils: 72 percent

Helena soils: 10 percent

Minor soils (including Vance, Chewacla, Wake, and Wehadkee soils): 18 percent

Soil Characteristics

Wedowee

Surface layer: Yellowish brown sandy loam

Subsoil: In sequence downward, yellow sandy clay loam, brownish yellow clay loam that has red mottles, brownish yellow sandy clay that has red mottles, and brownish yellow clay loam that has red and yellowish red mottles

Underlying material: Upper part—multicolored sandy clay loam saprolite in shades of yellow, red, brown, and white; lower part—multicolored sandy loam saprolite in shades of yellow, red, brown, and white

Depth class: Very deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 2 to 15 percent

Parent material: Residuum weathered from felsic crystalline rock

Helena

Surface layer: Brown sandy loam

Subsoil: In sequence downward, brownish yellow clay; brownish yellow clay that has strong brown mottles; light brownish gray, yellowish brown, and yellow clay loam; and red, yellowish brown, and light gray clay loam

Underlying material: Upper part—multicolored fine sandy loam saprolite in shades of red, yellow, and gray; lower part—multicolored gravelly sandy loam saprolite in shades of white, brown, yellow, and gray

Depth class: Very deep

Drainage class: Moderately well drained

High water table: At a depth of 1.5 to 2.5 feet from January through April

Slope range: 2 to 6 percent

Parent material: Residuum weathered from a mixture of felsic, intermediate, or mafic igneous or high-grade metamorphic rock

Minor soils

- Random areas of the well drained, slowly permeable Vance soils on small knolls
- The somewhat poorly drained Chewacla soils and the poorly drained Wehadkee soils on flood plains
- Random areas of Wake soils that have hard bedrock at a depth of 8 to 20 inches

Use and Management

Major Uses: Cropland, pasture, hayland, woodland, and urban development

Agricultural Development**Cropland**

Management concerns: Wedowee—erodibility and soil fertility; Helena—wetness, erodibility, and soil fertility

Pasture and hayland

Management concerns: Wedowee—erodibility, equipment use on the steeper slopes, and soil fertility; Helena—wetness, erodibility, and soil fertility

Woodland

Management concerns: Competition from undesirable plants

Urban Development**Septic tank absorption fields**

Management concerns: Wedowee—restricted permeability and slope in the steeper areas; Helena—wetness and restricted permeability

Dwellings

Management concerns: Wedowee—slope in the steeper areas; Helena—wetness and shrink-swell potential

Small commercial buildings

Management concerns: Wedowee—slope in the steeper areas; Helena—shrink-swell potential

Local roads and streets

Management concerns: Wedowee—slope in the steeper areas and low strength; Helena—shrink-swell potential and low strength

2. Wake-Wedowee-Wateree

Gently sloping to moderately steep, excessively drained to well drained soils that have a sandy or loamy surface layer and a sandy, clayey, or loamy subsoil; on Piedmont uplands

Setting

Location in the survey area: Throughout the county

Landscape: Piedmont

Landform: Ridges, hill slopes, and knolls

Landform position: Convex side slopes

Slope range: 2 to 30 percent

Composition

Percent of the survey area: 20

Wake soils: 32 percent

Wedowee soils: 25 percent

Wateree soils: 17 percent

Minor soils (including Saw, Chewacla, Helena, Rion, and Wehadkee soils): 26 percent

Soil Characteristics**Wake**

Surface layer: Yellowish brown gravelly loamy coarse sand

Underlying material: Reddish yellow gravelly loamy sand

Bedrock: Upper part—weathered, moderately fractured porphyritic granite; lower part—unweathered, slightly fractured porphyritic granite

Depth class: Shallow

Drainage class: Excessively drained

Depth to high water table: More than 6.0 feet

Slope range: 2 to 30 percent

Parent material: Residuum weathered from coarse grained felsic crystalline rock

Wedowee

Surface layer: Yellowish brown sandy loam

Subsoil: In sequence downward, yellow sandy clay loam, brownish yellow clay loam that has red mottles, brownish yellow sandy clay that has red mottles, and brownish yellow clay loam that has red and yellowish red mottles

Underlying material: Upper part—multicolored sandy clay loam saprolite in shades of yellow, red, brown, and white; lower part—multicolored sandy loam saprolite in shades of yellow, red, brown, and white

Depth class: Very deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 2 to 30 percent

Parent material: Residuum weathered from felsic crystalline rock

Wateree

Surface layer: Olive brown sandy loam

Subsoil: Upper part—dark yellowish brown sandy loam; lower part—yellowish brown sandy loam

Underlying material: Multicolored sandy loam saprolite in shades of red, brown, and yellow

Bedrock: Upper part—weathered, highly fractured porphyritic granite; lower part—weathered, moderately fractured porphyritic granite

Depth class: Moderately deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 8 to 30 percent

Parent material: Residuum weathered from felsic crystalline rock, commonly granite and gneiss

Minor soils

- The moderately deep Saw soils that have hard bedrock at a depth of 20 to 40 inches
- The somewhat poorly drained Chewacla soils and the poorly drained Wehadkee soils on flood plains
- The very deep, loamy Rion soils on steep side slopes
- The moderately well drained, slowly permeable Helena soils in slight depressions and at the head of drainageways

Use and Management

Major Uses: Pasture, hayland, and woodland

Agricultural Development

Cropland

Management concerns: Wake—erodibility, equipment use, droughtiness, nutrient leaching, and rooting depth; Wedowee—erodibility and soil fertility; Wateree—erodibility, equipment use, rooting depth, and soil fertility

Pasture and hayland

Management concerns: Wake—erodibility, equipment use, droughtiness, nutrient leaching, and rooting depth; Wedowee—erodibility, equipment use on the steeper slopes, and soil fertility; Wateree—erodibility, equipment use, rooting depth, and soil fertility

Woodland

Management concerns: Wake and Wateree—erodibility, equipment use, seedling survival, and windthrow hazard; Wedowee—erodibility, equipment use, and competition from undesirable plants

Urban Development

Septic tank absorption fields

Management concerns: Wake—depth to bedrock and slope in the steeper areas; Wateree—depth to bedrock and slope; Wedowee—restricted permeability and slope in the steeper areas

Dwellings

Management concerns: Wake—depth to bedrock and slope in the steeper areas; Wateree—depth to bedrock and slope; Wedowee—slope in the steeper areas

Small commercial buildings

Management concerns: Wake—depth to bedrock and slope in the steeper areas; Wateree—depth to bedrock and slope; Wedowee—slope in the steeper areas

Local roads and streets

Management concerns: Wake—depth to bedrock and slope in the steeper areas; Wedowee—low strength and slope in the steeper areas; Wateree—slope

3. Cecil-Pacolet

Gently sloping to strongly sloping, well drained soils that have a loamy surface layer and a clayey subsoil; on Piedmont uplands

Setting

Location in the survey area: Primarily the eastern and north-central parts of the county

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Convex side slopes

Slope range: 2 to 15 percent

Composition

Percent of the survey area: 14

Cecil soils: 65 percent

Pacolet soils: 24 percent

Minor soils (including Wedowee, Chewacla, Helena, and Appling soils): 11 percent

Soil Characteristics

Cecil

Surface layer: Dark yellowish brown sandy loam

Subsoil: Upper part—red clay; middle part—red clay that has yellowish red mottles; lower part—red clay loam that has yellowish red mottles

Underlying material: Red loam saprolite that has mottles in shades of yellow, brown, and white

Depth class: Very deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 2 to 10 percent

Parent material: Residuum weathered from igneous or high-grade metamorphic rock

Pacolet

Surface layer: Dark brown sandy loam

Subsoil: Upper part—red clay; lower part—red clay loam

Underlying material: Upper part—multicolored loam saprolite in shades of red, brown, and yellow; lower part—multicolored sandy loam saprolite in shades of yellow, red, and brown

Depth class: Very deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 2 to 15 percent

Parent material: Residuum weathered from high-grade metamorphic or igneous rock

Minor soils

- Random areas of Wedowee soils which have a yellow subsoil and a solum that is less than 40 inches thick
- The somewhat poorly drained Chewacla soils on flood plains
- Random areas of the moderately well drained Helena soils
- Random areas of Appling soils which have a yellow subsoil and a solum that is more than 40 inches thick
- Random areas of Cecil and Pacolet soils which have a surface layer of clay loam or sandy clay loam

Use and Management

Major Uses: Cropland, pasture, hayland, woodland, and urban development

Agricultural Development

Cropland

Management concerns: Cecil—erodibility, soil fertility, and tilth in eroded areas; Pacolet—erodibility, soil fertility, and tilth

Pasture and hayland

Management concerns: Cecil—erodibility, equipment use on the steeper slopes, and soil fertility; Pacolet—erodibility, equipment use, and soil fertility

Woodland

Management concerns: Cecil—equipment use and seedling survival in eroded areas and competition from undesirable plants; Pacolet—equipment use, seedling survival, and competition from undesirable plants

Urban Development

Septic tank absorption fields

Management concerns: Restricted permeability and slope

Dwellings

Management concerns: Slope

Small commercial buildings

Management concerns: Slope

Local roads and streets

Management concerns: Low strength and slope

4. Chewacla-Wehadkee-Altavista

Nearly level, moderately well drained to poorly drained soils that have a loamy surface layer and a loamy subsoil; on flood plains and terraces

Setting

Location in the survey area: Central part of the county

Landscape: Piedmont and Coastal Plain

Landform: Flood plains and low stream terraces

Landform position: Planar to slightly concave slopes

Slope range: 0 to 3 percent

Composition

Percent of the survey area: 6

Chewacla soils: 46 percent

Wehadkee soils: 30 percent
 Altavista soils: 12 percent
 Minor soils (including Riverview, Buncombe,
 Roanoke, and Wahee soils): 12 percent

Soil Characteristics

Chewacla

Surface layer: Upper part—brown loam that has brown mottles; lower part—brown loam that has dark brown and brown mottles

Subsoil: Upper part—brown clay loam that has dark brown and brown mottles; lower part—brown loam that has light brownish gray and brown mottles

Underlying material: Upper part—yellowish red silt loam that has grayish brown mottles; middle part—light gray fine sandy loam that has brownish yellow and strong brown mottles; lower part—gray fine sandy loam

Depth class: Very deep

Drainage class: Somewhat poorly drained

High water table: At a depth of 0.5 foot to 1.5 feet from November through April

Slope range: 0 to 3 percent

Hazard of flooding: Frequent flooding from November through June for periods of 2 to 7 days

Parent material: Alluvium from soils that formed in residuum derived from metamorphic or igneous rock

Wehadkee

Surface layer: Gray silt loam that has strong brown mottles

Subsoil: Gray silty clay loam that has strong brown mottles

Underlying material: Gray silt loam that has olive mottles

Depth class: Very deep

Drainage class: Poorly drained

High water table: Within a depth of 1.0 foot from November through May

Slope range: 0 to 3 percent

Hazard of flooding: Frequent flooding from November through June for periods of 2 to 7 days

Parent material: Alluvium from soils that formed in residuum derived from metamorphic or igneous rock

Altavista

Surface layer: Dark grayish brown sandy loam

Subsurface layer: Light yellowish brown sandy loam

Subsoil: Upper part—brownish yellow sandy clay loam that has light gray and light yellowish brown mottles; lower part—brownish yellow sandy loam

that has light gray and light yellowish brown mottles

Underlying material: Upper part—light gray coarse sandy loam that has very pale brown mottles; lower part—light gray clay loam that has light yellowish brown and brownish yellow mottles

Depth class: Very deep

Drainage class: Moderately well drained

High water table: At a depth of 1.5 to 2.5 feet from December through April

Slope range: 0 to 3 percent

Hazard of flooding: Rare

Parent material: Loamy fluvial and marine sediments

Minor soils

- Random areas of the well drained Riverview and Buncombe soils in the slightly higher landscape positions adjacent to streams and rivers
- The clayey Roanoke and Wahee soils on the lower terraces

Use and Management

Major Uses: Unmanaged woodland and wetland wildlife habitat

Agricultural Development

Cropland

Management concerns: Flooding, wetness, and soil fertility

Pasture and hayland

Management concerns: Flooding, wetness, and soil fertility

Woodland

Management concerns: Chewacla—equipment use, windthrow hazard, and competition from undesirable plants; Wehadkee—equipment use, seedling survival, windthrow hazard, and competition from undesirable plants; Altavista—competition from undesirable plants

Urban Development

Septic tank absorption fields

Management concerns: Flooding and wetness

Dwellings

Management concerns: Flooding and wetness

Small commercial buildings

Management concerns: Flooding and wetness

Local roads and streets

Management concerns: Flooding, wetness, and low strength

5. Appling-Vance-Helena

Gently sloping to moderately sloping, well drained soils that have a sandy or loamy surface layer and a clayey subsoil; on Piedmont uplands

Setting

Location in the survey area: Northern, southern, and western parts of the county

Landscape: Piedmont

Landform: Ridges

Landform position: Appling—convex side slopes; Vance—knolls; Helena—slightly concave side slopes and concave head slopes

Slope range: 2 to 10 percent

Composition

Percent of the survey area: 10

Appling soils: 31 percent

Vance soils: 24 percent

Helena soils: 22 percent

Minor soils (including Wedowee, Cecil, Wehadkee, and Wake soils): 23 percent

Soil Characteristics**Appling**

Surface layer: Dark grayish brown loamy sand

Subsoil: In sequence downward, strong brown sandy clay that has red mottles, strong brown clay that has red mottles, strong brown sandy clay that has yellowish brown and yellow mottles, and yellowish red clay loam that has yellow and strong brown mottles

Underlying material: Yellowish red clay loam saprolite that has light yellowish brown and white mottles

Depth class: Very deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 2 to 6 percent

Parent material: Residuum weathered from felsic crystalline rock

Vance

Surface layer: Brown sandy loam

Subsoil: In sequence downward, brownish yellow clay, strong brown clay, strong brown clay that has red

and reddish yellow mottles, and strong brown clay loam that has reddish yellow and red mottles

Underlying material: Upper part—red sandy loam that has strong brown mottles; lower part—multicolored clay loam saprolite in shades of red, brown, and yellow

Depth class: Very deep

Drainage class: Well drained

Depth to high water table: More than 60 inches

Slope range: 2 to 10 percent

Parent material: Residuum weathered from felsic crystalline rock

Helena

Surface layer: Brown sandy loam

Subsoil: In sequence downward, brownish yellow clay; brownish yellow clay that has strong brown mottles; yellow clay loam that has red and strong brown mottles; light brownish gray, yellowish brown, and yellow clay loam; and red, yellowish brown, and light gray clay loam

Underlying material: Upper part—multicolored fine sandy loam saprolite in shades of red, yellow, and gray; lower part—multicolored gravelly sandy loam saprolite in shades of white, brown, yellow, and gray

Depth class: Very deep

Drainage class: Moderately well drained

High water table: At a depth of 1.5 to 2.5 feet from January through April

Slope range: 2 to 6 percent

Parent material: Residuum weathered from a mixture of felsic, intermediate, or mafic igneous or high-grade metamorphic rock

Minor soils

- Random areas of Wedowee soils which have a yellow subsoil and a solum that is less than 40 inches thick
- Random areas of Cecil soils which have a red subsoil
- The poorly drained Wehadkee soils on flood plains
- Random areas of Wake soils which have hard bedrock at a depth of less than 20 inches

Use and Management

Major Uses: Cropland, pasture, hayland, and woodland

Agricultural Development**Cropland**

Management concerns: Appling—erodibility, equipment use, and soil fertility; Vance—erodibility

and soil fertility; Helena—erodibility, wetness, and soil fertility

Pasture and hayland

Management concerns: Appling and Vance—erodibility and soil fertility; Helena—erodibility, wetness, and soil fertility

Woodland

Management concerns: Competition from undesirable plants

Urban Development

Septic tank absorption fields

Management concerns: Appling and Vance—restricted permeability; Helena—wetness and restricted permeability

Dwellings

Management concerns: Appling—no significant limitations; Vance—shrink-swell potential; Helena—wetness and shrink-swell potential

Small commercial buildings

Management concerns: Appling—no significant limitations; Vance—slope in the steeper areas; Helena—shrink-swell potential

Local roads and streets

Management concerns: Appling and Vance—low strength; Helena—shrink-swell potential and low strength

6. Georgeville-Tatum-Herndon

Gently sloping to moderately steep, well drained soils that have a loamy surface layer and a clayey subsoil; on Piedmont uplands

Setting

Location in the survey area: Northeastern and southeastern parts of the county

Landscape: Piedmont

Landform: Ridges and hill slopes

Landform position: Convex side slopes

Slope range: 2 to 30 percent

Composition

Percent of the survey area: 9

Georgeville soils: 66 percent

Tatum soils: 13 percent

Herndon soils: 11 percent

Minor soils (including Chewacla, Helena, Appling, Wedowee, and Wehadkee soils): 10 percent

Soil Characteristics

Georgeville

Surface layer: Yellowish brown loam

Subsoil: Upper part—strong brown clay loam that has yellowish red mottles; middle part—red clay that has yellowish red mottles; lower part—red clay loam that has reddish yellow mottles

Underlying material: Red loam saprolite that has reddish yellow and yellowish brown mottles

Depth class: Very deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 2 to 10 percent

Parent material: Residuum weathered from fine grained metamorphic rock

Tatum

Surface layer: Brown loam

Subsoil: Red clay loam

Underlying material: Multicolored loam saprolite in shades of red, brown, and yellow

Bedrock: Upper part—weathered, highly fractured slate; lower part—unweathered, moderately fractured slate

Depth class: Deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 10 to 30 percent

Parent material: Residuum weathered from fine grained metamorphic rock

Herndon

Surface layer: Dark yellowish brown loam

Subsoil: Upper part—brownish yellow clay that has strong brown and red mottles; middle part—brownish yellow silty clay loam that has strong brown and red mottles; lower part—brownish yellow loam that has strong brown and red mottles

Underlying material: Multicolored loam saprolite in shades of yellow, brown, and red

Depth class: Very deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 2 to 10 percent

Parent material: Residuum weathered from fine grained metamorphic rock

Minor soils

- The somewhat poorly drained Chewacla soils and the poorly drained Wehadkee soils on flood plains

- Random areas of the moderately well drained Helena soils in slight depressions and at the head of drainageways
- Random areas of Appling soils that have less silt in the subsoil than the major soils and have a solum that is 40 to 60 inches thick
- Random areas of Georgeville soils that have a surface layer of clay loam
- Random areas of Georgeville soils that have a surface layer of gravelly loam
- Random areas of Wedowee soils that have less silt in the subsoil than the major soils and have a solum that is less than 40 inches thick

Use and Management

Major Uses: Cropland, pasture, hayland, and woodland

Agricultural Development

Cropland

Management concerns: Erodibility and soil fertility

Pasture and hayland

Management concerns: Erodibility, equipment use, and soil fertility

Woodland

Management concerns: Georgeville and Herndon—no significant limitations; Tatum—erodibility, equipment use, and competition from undesirable plants

Urban Development

Septic tank absorption fields

Management concerns: Georgeville and Herndon—restricted permeability; Tatum—slope, depth to bedrock, and restricted permeability

Dwellings

Management concerns: Georgeville—slope in the steeper areas; Tatum—shrink-swell potential and slope; Herndon—no significant limitations

Small commercial buildings

Management concerns: Slope

Local roads and streets

Management concerns: Georgeville and Herndon—low strength; Tatum—low strength and slope

7. Varina-Duplin

Nearly level to moderately sloping, well drained and moderately well drained soils that have a sandy or loamy surface layer and a clayey subsoil; on Coastal Plain uplands

Setting

Location in the survey area: Southeastern part of the county

Landscape: Coastal Plain

Landform: Broad ridges

Landform position: Varina—convex side slopes;

Duplin—planar to slightly concave side slopes

Slope range: 0 to 10 percent

Composition

Percent of the survey area: 3

Varina soils: 63 percent

Duplin soils: 20 percent

Minor soils (including Chewacla, Wehadkee, Rains, Toisnot, and Helena soils): 17 percent

Soil Characteristics

Varina

Surface layer: Brown loamy sand

Subsurface layer: Light yellowish brown sandy loam

Subsoil: In sequence downward, yellowish brown sandy clay loam; yellowish brown clay that has light yellowish brown, strong brown, and red mottles; yellowish brown sandy clay that has very pale brown and red mottles; brownish yellow sandy clay that has white and dark yellowish brown mottles; and yellow, white, and dark yellowish brown sandy clay

Depth class: Very deep

Drainage class: Well drained

High water table: At a depth of 4.0 to 5.0 feet from December through April

Slope range: 2 to 10 percent

Parent material: Marine sediments over residuum weathered from felsic crystalline rock

Duplin

Surface layer: Dark grayish brown sandy loam

Subsurface layer: Pale brown sandy loam

Subsoil: Upper part—brownish yellow sandy clay that has pale brown mottles; middle part—light olive brown sandy clay that has light gray and strong brown mottles; lower part—light gray sandy clay

that has light yellowish brown and yellowish brown mottles

Depth class: Very deep

Drainage class: Moderately well drained

High water table: At a depth of 2.0 to 3.0 feet from

December through April

Slope range: 0 to 3 percent

Parent material: Unconsolidated clayey marine sediments over residuum weathered from felsic crystalline rock

Minor soils

- The somewhat poorly drained Chewacla soils and the poorly drained Wehadkee soils on flood plains
- Random areas of the poorly drained Rains and Toisnot soils in the slightly lower landscape positions
- Random areas of the slowly permeable Helena soils which have less clay in the lower part of the subsoil than the major soils

Use and Management

Major Uses: Cropland, pasture, hayland, and woodland

Agricultural Development

Cropland

Management concerns: Varina—erodibility, equipment use, and soil fertility; Duplin—erodibility, wetness, and soil fertility

Pasture and hayland

Management concerns: Varina—erodibility, equipment use, and soil fertility; Duplin—erodibility, wetness, and soil fertility

Woodland

Management concerns: Varina—no significant limitations; Duplin—equipment use and seedling survival

Urban Development

Septic tank absorption fields

Management concerns: Varina—restricted permeability; Duplin—wetness

Dwellings

Management concerns: Wetness

Small commercial buildings

Management concerns: Varina—slope; Duplin—wetness

Local roads and streets

Management concerns: Varina—low strength and slope; Duplin—low strength

8. Georgeville-Varina-Tatum

Gently sloping to moderately steep, well drained soils that have a loamy or sandy surface layer and a clayey subsoil; on Piedmont and Coastal Plain uplands

Setting

Location in the survey area: Northeastern part of the county

Landscape: Piedmont and Coastal Plain

Landform: Broad ridges and hill slopes

Landform position: Side slopes

Slope range: 2 to 30 percent

Composition

Percent of the survey area: 1

Georgeville soils: 51 percent

Varina soils: 28 percent

Tatum soils: 12 percent

Minor soils (including Herndon, Helena, Duplin, Chewacla, and Wehadkee soils): 9 percent

Soil Characteristics

Georgeville

Surface layer: Yellowish brown loam

Subsoil: Upper part—strong brown clay loam that has yellowish red mottles; middle part—red clay that has yellowish red mottles; lower part—red clay loam that has reddish yellow mottles

Underlying material: Red loam saprolite that has reddish yellow and yellowish brown mottles

Depth class: Very deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 2 to 10 percent

Parent material: Residuum weathered from fine grained metamorphic rock

Varina

Surface layer: Brown loamy sand

Subsurface layer: Light yellowish brown sandy loam

Subsoil: In sequence downward, yellowish brown sandy clay loam; yellowish brown clay that has light yellowish brown, strong brown, and red mottles; yellowish brown sandy clay that has very pale brown and red mottles; brownish yellow sandy clay that has white and dark yellowish

brown mottles; and yellow, white, and dark yellowish brown sandy clay

Depth class: Very deep

Drainage class: Well drained

High water table: At a depth of 4.0 to 5.0 feet from December through April

Slope range: 2 to 10 percent

Parent material: Marine sediments over residuum weathered from felsic crystalline rock

Tatum

Surface layer: Brown loam

Subsoil: Red clay loam

Underlying material: Multicolored loam saprolite in shades of red, brown, and yellow

Bedrock: Upper part—weathered, highly fractured slate; lower part—unweathered, moderately fractured slate

Depth class: Deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 10 to 30 percent

Parent material: Residuum weathered from fine grained metamorphic rock

Minor soils

- Random areas of Herndon soils which have a yellow subsoil
- The moderately well drained, slowly permeable Helena soils in slight depressions and at the head of drainageways
- The moderately well drained Duplin soils in slight depressions on the Coastal Plain
- The somewhat poorly drained Chewacla soils and the poorly drained Wehadkee soils on flood plains
- Random areas of Georgeville soils that have a surface layer of clay loam
- Random areas of Georgeville soils that have a surface layer of gravelly loam
- Varina soils that have a surface layer of gravelly sandy loam

Use and Management

Major Uses: Cropland, pasture, hayland, and woodland

Agricultural Development

Cropland

Management concerns: Erodibility, equipment use on the steeper slopes, and soil fertility

Pasture and hayland

Management concerns: Erodibility, equipment use on the steeper slopes, and soil fertility

Woodland

Management concerns: Georgeville—equipment use and seedling survival in eroded areas; Varina—no significant limitations; Tatum—erodibility, equipment use, and competition from undesirable plants

Urban Development

Septic tank absorption fields

Management concerns: Georgeville and Varina—restricted permeability; Tatum—slope, depth to bedrock, and restricted permeability

Dwellings

Management concerns: Georgeville—slope; Varina—wetness and slope; Tatum—shrink-swell potential and slope

Small commercial buildings

Management concerns: Georgeville and Varina—slope; Tatum—shrink-swell potential and slope

Local roads and streets

Management concerns: Georgeville and Herndon—low strength; Varina—low strength and slope

9. Georgeville-Montonia

Gently sloping to moderately steep, well drained soils that have a loamy surface layer and a clayey or loamy subsoil; on Piedmont uplands

Setting

Location in the survey area: Northeastern part of the county

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Convex side slopes

Slope range: 2 to 30 percent

Composition

Percent of the survey area: 1

Georgeville soils: 55 percent

Montonia soils: 33 percent

Minor soils (including Winnsboro, Wilkes,

Chewacla, and Wehadkee soils): 12 percent

Soil Characteristics

Georgeville

Surface layer: Brown gravelly loam

Subsoil: Upper part—strong brown gravelly loam; middle part—red clay; lower part—red clay loam

Depth class: Very deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 2 to 30 percent

Parent material: Residuum weathered from fine grained metamorphic rock

Montonia

Surface layer: Brown channery loam

Subsoil: Upper part—strong brown channery loam; lower part—yellowish red clay loam

Bedrock: Upper part—weathered, moderately fractured amphibolite; lower part—unweathered, slightly fractured amphibolite

Depth class: Moderately deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 8 to 30 percent

Parent material: Residuum weathered from fine grained metamorphic rock

Minor soils

- The deep Winnsboro soils that have a moderate or high shrink-swell potential
- The shallow Wilkes soils that have bedrock at a depth of less than 20 inches
- The somewhat poorly drained Chewacla soils and the poorly drained Wehadkee soils on flood plains

Use and Management

Major Uses: Woodland, pasture, and hayland

Agricultural Development

Cropland

Management concerns: Georgeville—erodibility, equipment use, and soil fertility; Montonia—erodibility, equipment use, rooting depth, and soil fertility

Pasture and hayland

Management concerns: Georgeville—erodibility, equipment use, and soil fertility; Montonia—erodibility, equipment use, rooting depth, and soil fertility

Woodland

Management concerns: Georgeville—erodibility and

equipment use on the steeper slopes; Montonia—erodibility, equipment use, seedling survival, windthrow hazard, and competition from undesirable plants

Urban Development

Septic tank absorption fields

Management concerns: Georgeville—slope and restricted permeability; Montonia—depth to bedrock and slope

Dwellings

Management concerns: Georgeville—slope; Montonia—depth to bedrock and slope

Small commercial buildings

Management concerns: Slope

Local roads and streets

Management concerns: Georgeville—low strength and slope; Montonia—slope

10. Winnsboro-Wilkes

Gently sloping to moderately steep, well drained soils that have a loamy surface layer and a clayey subsoil; on Piedmont uplands

Setting

Location in the survey area: Northern and central parts of the county

Landscape: Piedmont

Landform: Ridges and hill slopes

Landform position: Winnsboro—slightly concave side slopes; Wilkes—convex side slopes

Slope range: 2 to 30 percent

Composition

Percent of the survey area: 1

Winnsboro soils: 44 percent

Wilkes soils: 39 percent

Minor soils (including Georgeville, Montonia, Chewacla, and Wehadkee soils): 17 percent

Soil Characteristics

Winnsboro

Surface layer: Brown loam

Subsoil: Upper part—yellowish brown clay; lower part—yellowish brown clay loam that has brownish yellow mottles

Underlying material: Multicolored loam saprolite in shades of brown, yellow, and olive

Bedrock: Weathered, highly fractured hornblende gneiss

Depth class: Deep

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 2 to 30 percent

Parent material: Residuum weathered from intermediate to mafic high-grade metamorphic or igneous rock

Wilkes

Surface layer: Brown sandy loam

Subsoil: Light olive brown clay

Underlying material: Pale olive clay loam saprolite that has yellowish brown mottles

Bedrock: Weathered, moderately fractured hornblende gneiss

Depth class: Shallow

Drainage class: Well drained

Depth to high water table: More than 6.0 feet

Slope range: 2 to 30 percent

Parent material: Residuum weathered from intermediate to mafic high-grade metamorphic or igneous rock

Minor soils

- Random areas of Georgeville soils which have a red subsoil and a solum that is more than 40 inches thick
- Random areas of Montonia soils which have a loamy subsoil
- The somewhat poorly drained Chewacla soils and the poorly drained Wehadkee soils on flood plains

Use and Management

Major Uses: Woodland, pasture, and hayland

Agricultural Development

Cropland

Management concerns: Winnsboro—erodibility and equipment use on the steeper slopes; Wilkes—erodibility, equipment use, and rooting depth

Pasture and hayland

Management concerns: Winnsboro—erodibility and equipment use on the steeper slopes; Wilkes—erodibility, equipment use, and rooting depth

Woodland

Management concerns: Erodeability and equipment use in the steeper areas

Urban Development

Septic tank absorption fields

Management concerns: Winnsboro—restricted permeability and slope; Wilkes—slope and depth to bedrock

Dwellings

Management concerns: Winnsboro—slope and shrink-swell potential; Wilkes—slope and depth to bedrock

Small commercial buildings

Management concerns: Slope

Local roads and streets

Management concerns: Low strength and slope

11. Rains-Altavista-Toisnot

Nearly level, moderately well drained to poorly drained soils that have a loamy surface layer and a loamy subsoil; on terraces of the Coastal Plain

Setting

Location in the survey area: Southern and central parts of the county

Landscape: Coastal Plain

Landform: Terraces

Landform position: Planar to slightly concave slopes

Slope range: 0 to 2 percent

Composition

Percent of the survey area: 1

Rains soils: 22 percent

Altavista soils: 20 percent

Toisnot soils: 11 percent

Minor soils (including Roanoke, Wahee, Varina, Chewacla, and Wehadkee soils): 47 percent

Soil Characteristics

Rains

Surface layer: Upper part—very dark gray loam; lower part—dark gray loam

Subsurface layer: White sandy loam that has light gray mottles

Subsoil: Upper part—light gray clay loam that has light yellowish brown and strong brown mottles; middle part—light brownish gray clay loam that has light gray, strong brown, and yellowish red mottles; lower part—light gray, white, and light brownish

gray clay loam that has yellowish red and yellowish brown mottles

Underlying material: Light gray, white, and light brownish gray fine sandy loam that has light yellowish brown mottles

Depth class: Very deep

Drainage class: Poorly drained

High water table: Within a depth of 1.0 foot from November through April

Slope range: 0 to 2 percent

Parent material: Loamy fluvial and marine sediments

Altavista

Surface layer: Dark grayish brown sandy loam

Subsurface layer: Light yellowish brown sandy loam

Subsoil: Upper part—brownish yellow sandy loam that has light gray and light yellowish brown mottles; lower part—brownish yellow sandy loam that has light gray and light yellowish brown mottles

Underlying material: Upper part—light gray coarse sandy loam that has very pale brown mottles; lower part—light gray clay loam that has light yellowish brown and brownish yellow mottles

Depth class: Very deep

Drainage class: Moderately well drained

High water table: At a depth of 1.5 to 2.5 feet from December through April

Slope range: 0 to 3 percent

Parent material: Loamy fluvial and marine sediments

Toisnot

Surface layer: Very dark gray sandy loam

Subsurface layer: Gray loamy fine sand that has light gray mottles

Subsoil: In sequence downward, dark grayish brown and light gray sandy loam, light gray and white sandy loam that has light yellowish brown and yellowish brown mottles, white fine sandy loam that has light gray and light yellowish brown mottles, and white fine sandy loam

Underlying material: White sandy clay that has light gray and light yellowish brown mottles

Depth class: Moderately deep to root-limiting layer

Drainage class: Poorly drained

High water table: Within a depth of 1.0 foot from December through April

Slope range: 0 to 2 percent

Parent material: Fluvial or marine sediments

Minor soils

- The poorly drained, clayey Roanoke soils and the

somewhat poorly drained, clayey Wahee soils on low terraces

- Random areas of the well drained, clayey Varina soils in the higher landscape positions
- The somewhat poorly drained Chewacla soils and the poorly drained Wehadkee soils on flood plains

Use and Management

Major Uses: Wetland wildlife habitat and unmanaged woodland

Agricultural Development

Cropland

Management concerns: Rains—ponding, wetness, and soil fertility; Altavista—flooding, wetness, and soil fertility; Toisnot—wetness, root penetration, and soil fertility

Pasture and hayland

Management concerns: Rains—ponding, wetness, and soil fertility; Altavista—flooding, wetness, and soil fertility; Toisnot—wetness, root penetration, and soil fertility

Woodland

Management concerns: Rains and Toisnot—equipment use, seedling survival, windthrow hazard, and competition from undesirable plants; Altavista—competition from undesirable plants

Urban Development

Septic tank absorption fields

Management concerns: Rains—wetness; Altavista—flooding and wetness; Toisnot—cemented pan and wetness

Dwellings

Management concerns: Rains and Toisnot—wetness; Altavista—flooding and wetness

Small commercial buildings

Management concerns: Rains and Toisnot—wetness; Altavista—flooding and wetness

Local roads and streets

Management concerns: Rains and Toisnot—wetness; Altavista—flooding, wetness, and low strength

Detailed Soil Map Units

The map units delineated on the detailed maps at the back of this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the heading "Use and Management of the Soils."

A map unit delineation on a 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 or miscellaneous areas. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas 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 "included" areas that belong to other taxonomic classes.

Most included 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, inclusions. They may or may not be mentioned in the map unit description. For example, Georgeville gravelly loam, 2 to 8 percent slopes, stony, would be expected to include small areas that have slopes of less than 2 percent or more than 8 percent and areas that have fewer or more stones than are required for the classification "stony." Generally, only those inclusions that are significant to use and management or that add to the user's understanding of the map unit concept are discussed.

Some included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called

contrasting, or dissimilar, inclusions. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas 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 of the soils and miscellaneous areas on the landscape.

The presence of included areas 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, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Georgeville gravelly loam, 2 to 8 percent slopes, stony, is a phase of the Georgeville series.

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

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Roanoke-Wahee complex, 0 to 3 percent slopes, occasionally flooded, 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. Chewacla and Wehadkee soils, 0 to 3 percent slopes, frequently flooded, is an undifferentiated group in this survey area.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. The Rock outcrop component of the Rock outcrop-Wake complex, 2 to 10 percent slopes, is an example.

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

AaA—Altavista sandy loam, 0 to 3 percent slopes, rarely flooded

Setting

Landscape: Piedmont and Coastal Plain

Landform: Low stream terraces

Landform position: Planar to slightly concave slopes

Shape of areas: Long and narrow

Size of areas: 5 to 100 acres

Composition

Altavista soil and similar soils: 85 percent

Dissimilar soils: 15 percent

Typical Profile

Surface layer:

0 to 9 inches—dark grayish brown sandy loam

Subsurface layer:

9 to 16 inches—light yellowish brown sandy loam

Subsoil:

16 to 46 inches—brownish yellow sandy clay loam that has light gray, very pale brown, and yellowish brown mottles

46 to 54 inches—brownish yellow sandy loam that has light gray and light yellowish brown mottles

Underlying material:

54 to 58 inches—light gray coarse sandy loam that has very pale brown mottles

58 to 62 inches—light gray clay loam that has light yellowish brown and brownish yellow mottles

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Moderately well drained

Permeability: Moderate

Available water capacity: Moderate

High water table: At a depth of 1.5 to 2.5 feet from December through April

Shrink-swell potential: Low

Slope class: Nearly level

Hazard of flooding: Rare

Surface runoff: Low

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: None or slight

Content of organic matter (surface layer): Low to moderate

Soil reaction: Extremely acid to moderately acid throughout the profile, except where the surface layer has been limed

Parent material: Loamy fluvial and marine sediments

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Random areas of clayey soils in landscape positions similar to those of the Altavista soil
- Somewhat poorly drained soils and poorly drained soils in the slightly lower landscape positions
- The well drained State soils in the slightly higher landscape positions
- Well drained soils that have a red subsoil and are in the slightly higher landscape positions

Similar:

- Altavista soils that have a surface layer of loam or fine sandy loam

Land Use

Dominant Uses: Cropland, pasture, and hayland

Other Uses: Unmanaged woodland

Agricultural Development

Cropland

Suitability: Well suited

Management concerns: Flooding, wetness, and soil fertility

Management measures and considerations:

- Harvesting row crops as early as possible helps to reduce the risk of damage caused by flooding.
- Installing a subsurface drainage system helps to improve the productivity of moisture-sensitive crops, such as tobacco.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Flooding, wetness, and soil fertility

Management measures and considerations:

- Harvesting hay crops as early as possible helps to reduce the risk of damage caused by flooding.
- Preventing overgrazing or preventing grazing when the soil is too wet helps to prevent soil compaction, decreased productivity, and a rough soil surface.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: High for loblolly pine

Management concerns: Competition from undesirable plants

Management measures and considerations:

- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Flooding and wetness

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Suitable fill material can be used to raise the filter field a sufficient distance above the high water table

and thus help to improve the performance of septic systems.

Dwellings

Suitability: Poorly suited

Management concerns: Flooding and wetness

Management measures and considerations:

- Building structures on the highest part of the landscape helps to reduce the risk of damage caused by flooding.
- Installing a subsurface drainage system helps to lower the high water table.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Flooding

Management measures and considerations:

- Building structures on the highest part of the landscape helps to reduce the risk of damage caused by flooding.

Local roads and streets

Suitability: Suited

Management concerns: Wetness, flooding, and low strength

Management measures and considerations:

- Designing roads so that they safely remove surface runoff helps to improve soil performance.
- Well compacted fill material should be used as road base so that roads are above the level of flooding.
- Providing sand and gravel and compacting roadbeds improve soil strength.

Interpretive Groups

Land capability classification: IIw

Woodland ordination symbol: 9A, based on loblolly pine as the indicator species

ApB—Applying loamy sand, 2 to 6 percent slopes

Setting

Landscape: Piedmont uplands

Landform: Broad ridges

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 10 to 350 acres

Composition

Applying soil and similar soils: 85 percent

Dissimilar soils: 15 percent

Typical Profile

Surface layer:

0 to 5 inches—dark grayish brown loamy sand

Subsoil:

5 to 12 inches—strong brown sandy clay that has red mottles

12 to 26 inches—strong brown clay that has red mottles

26 to 44 inches—strong brown sandy clay that has yellowish brown and yellow mottles

44 to 58 inches—yellowish red clay loam that has yellow and strong brown mottles

Underlying material:

58 to 62 inches—yellowish red clay loam saprolite that has light yellowish brown and white mottles

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: High

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Gently sloping

Surface runoff: Medium or rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Moderate

Content of organic matter (surface layer): Low

Soil reaction: Very strongly acid or strongly acid throughout the profile, except where the surface layer has been limed

Parent material: Residuum weathered from felsic igneous and metamorphic rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- The moderately well drained, slowly permeable Helena soils in slight depressions and at the head of drainageways
- The slowly permeable Vance soils on the higher knolls
- Random areas of the eroded Appling soils that have a surface layer of clay loam or sandy clay loam

Similar:

- Soils that are similar to the Appling soil but have a red subsoil
- Random areas of Wedowee soils which have a thinner subsoil than the Appling soil

Land Use

Dominant Uses: Cropland (fig. 2)

Other Uses: Pasture, hayland, and woodland

Agricultural Development

Cropland

Suitability: Well suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Using equipment with low-pressure tires helps to prevent slippage and rutting caused by the high content of sand.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Competition from undesirable plants

Management measures and considerations:

- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability



Figure 2.—Irrigation of tobacco in an area of Applying loamy sand, 2 to 6 percent slopes. Tobacco is historically an important crop in Franklin County.

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting dwellings.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

CaB—Cecil sandy loam, 2 to 6 percent slopes

Setting

Landscape: Piedmont
Landform: Broad ridges
Landform position: Convex side slopes
Shape of areas: Irregular
Size of areas: 5 to 350 acres

Composition

Cecil soil and similar soils: 90 percent
 Dissimilar soils: 10 percent

Typical Profile

Surface layer:
 0 to 8 inches—dark yellowish brown sandy loam

Subsoil:
 8 to 26 inches—red clay
 26 to 42 inches—red clay that has yellowish red mottles
 42 to 50 inches—red clay loam that has yellowish red mottles

Underlying material:
 50 to 73 inches—red loam saprolite that has pale yellow and brown mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to high water table: More than 6.0 feet
Shrink-swell potential: Low
Slope class: Gently sloping
Surface runoff: Medium or rapid
Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed
Hazard of water erosion: Moderate
Content of organic matter (surface layer): Low
Soil reaction: Very strongly acid to moderately acid in the A horizon, except where the surface layer has been limed; very strongly acid or strongly acid in the B and C horizons

Parent material: Residuum weathered from igneous or high-grade metamorphic rock
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- The moderately well drained, slowly permeable Helena soils in slight depressions and at the head of drainageways
- Random areas of the eroded Cecil soils that have a surface layer of clay loam or sandy clay loam
- Random areas of Cecil soils that have a gravelly surface layer
- Random areas of soils that have bedrock at a depth of less than 60 inches

Similar:

- Soils that are similar to the Cecil soil but have a yellow subsoil
- Random areas of Pacolet soils which have a thinner subsoil than the Cecil soil

Land Use

Dominant Uses: Cropland, pasture, and hayland
Other Uses: Woodland

Agricultural Development

Cropland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes

productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Competition from undesirable plants

Management measures and considerations:

- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting dwellings.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups

Land capability classification: IIe

Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

CaC—Cecil sandy loam, 6 to 10 percent slopes

Setting

Landscape: Piedmont

Landform: Ridges

Landform position: Convex side slopes

Shape of areas: Narrow and irregular

Size of areas: 5 to 350 acres

Composition

Cecil soil and similar soils: 85 percent

Dissimilar soils: 15 percent

Typical Profile

Surface layer:

0 to 8 inches—dark yellowish brown sandy loam

Subsoil:

8 to 26 inches—red clay

26 to 42 inches—red clay that has yellowish red mottles

42 to 50 inches—red clay loam that has yellowish red mottles

Underlying material:

50 to 73 inches—red loam saprolite that has pale yellow and brown mottles

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Moderately sloping

Surface runoff: Medium or rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Severe

Content of organic matter (surface layer): Low

Soil reaction: Very strongly acid to moderately acid in the A horizon, except where the surface layer has been limed; very strongly acid or strongly acid in the B and C horizons

Parent material: Residuum weathered from igneous or high-grade metamorphic rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- The moderately well drained, slowly permeable

Helena soils in slight depressions and at the head of drainageways

- Random areas of the eroded Cecil soils that have a surface layer of clay loam or sandy clay loam
- Random areas of Cecil soils which have a gravelly surface layer
- Random areas of soils that have bedrock at a depth of less than 60 inches

Similar:

- Soils that are similar to the Cecil soil but have a yellow subsoil
- Random areas of Pacolet soils which have a thinner subsoil than the Cecil soil

Land Use

Dominant Uses: Cropland, pasture, and hayland

Other Uses: Woodland

Agricultural Development

Cropland

Suitability: Suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Resource management systems that include conservation tillage, crop residue management, stripcropping, and sod-based rotations help to reduce the hazard of erosion, control surface runoff, and maximize water infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability for pasture: Well suited

Suitability for hayland: Suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit equipment use in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Competition from undesirable plants

Management measures and considerations:

- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability and slope

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.
- Installing distribution lines on the contour helps to improve performance of septic tank absorption fields.

Dwellings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength and slope

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Groups

Land capability classification: IIIe

Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

CeB2—Cecil clay loam, 2 to 6 percent slopes, eroded

Setting

Landscape: Piedmont

Landform: Broad ridges

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 100 acres

Composition

Cecil soil and similar soils: 85 percent

Dissimilar soils: 15 percent

Typical Profile

Surface layer:

0 to 3 inches—yellowish red clay loam

Subsoil:

3 to 30 inches—red clay

30 to 45 inches—red clay loam

Underlying material:

45 to 62 inches—red and yellowish red loam saprolite

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Gently sloping

Surface runoff: Medium or rapid

Extent of erosion: Moderate, about 25 to 75 percent of the original surface layer has been removed

Hazard of water erosion: Severe

Content of organic matter (surface layer): Low

Soil reaction: Very strongly acid to moderately acid in the A horizon, except where the surface layer has been limed; very strongly acid or strongly acid in the B and C horizons

Parent material: Residuum weathered from igneous or high-grade metamorphic rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- The moderately well drained, slowly permeable Helena soils in slight depressions and at the head of drainageways
- Random areas of the uneroded Cecil soils that have a surface layer of sandy loam or loam

- Random areas of Cecil soils which have a gravelly surface layer
- Random areas of Pacolet soils which have a thinner subsoil than the Cecil soil
- Random areas of soils that have bedrock at a depth of less than 60 inches

Similar:

- Soils that are similar to the eroded Cecil soils but have a yellow subsoil
- The eroded Cecil soils that have a surface layer of sandy clay loam

Land Use

Dominant Uses: Cropland, pasture, and hayland

Other Uses: Unmanaged woodland

Agricultural Development

Cropland

Suitability: Well suited

Management concerns: Erodibility, equipment use, tillage, and soil fertility

Management measures and considerations:

- Resource management systems that include conservation tillage, crop residue management, stripcropping, and sod-based rotations help to prevent further erosion by stabilizing the soil, controlling surface runoff, and maximizing water infiltration.
- Tilling only during periods when the soil is not wet helps to prevent rutting and compaction resulting from the high content of clay.
- Incorporating crop residue into the soil or leaving residue on the soil surface helps to minimize clodding and crusting and maximize water infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Equipment use, seedling survival, and competition from undesirable plants

Management measures and considerations:

- Unsurfaced roads may be impassable during wet periods because of the high content of clay.
- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces seedling mortality, and increases early seedling growth.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting dwellings.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups

Land capability classification: IIIe

Woodland ordination symbol: 7C, based on loblolly pine as the indicator species

ChA—Chewacla and Wehadkee soils, 0 to 3 percent slopes, frequently flooded

Setting

Landscape: Piedmont

Landform: Flood plains

Landform position: Planar to slightly concave slopes

Shape of areas: Long and narrow

Size of areas: 5 to more than 500 acres

Composition

Chewacla soil and similar soils: Average of about 60 percent

Wehadkee soil and similar soils: Average of about 30 percent

Dissimilar soils: 10 percent

Typical Profile

Chewacla

Surface layer:

0 to 3 inches—brown loam that has brown mottles

3 to 10 inches—brown loam that has dark brown and brown mottles

Subsoil:

10 to 16 inches—brown clay loam that has dark brown and brown mottles

16 to 28 inches—brown loam that has light brownish gray and brown mottles

Underlying material:

28 to 33 inches—yellowish red silt loam that has grayish brown mottles

33 to 48 inches—light gray fine sandy loam that has brownish yellow and strong brown mottles

48 to 62 inches—gray fine sandy loam

Wehadkee

Surface layer:

0 to 14 inches—gray silt loam that has strong brown mottles

Subsoil:

14 to 30 inches—gray silty clay loam that has strong brown mottles

Underlying material:

30 to 62 inches—gray silt loam that has olive mottles

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Chewacla—somewhat poorly drained; Wehadkee—poorly drained

Permeability: Moderate

Available water capacity: High

High water table: Chewacla—at a depth of 0.5 foot to 1.5 feet from November through April;

Wehadkee—within a depth of 1.0 foot from November through May

Shrink-swell potential: Low

Slope class: Nearly level

Hazard of flooding: Frequent flooding from November through June for periods of 2 to 7 days

Surface runoff: Chewacla—slow; Wehadkee—very slow

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: None or slight

Content of organic matter (surface layer): Chewacla—low to moderate; Wehadkee—moderate or high

Soil reaction: Chewacla—very strongly acid to slightly acid within a depth of 40 inches, except where the surface layer has been limed, and very strongly acid to slightly alkaline below a depth of 40 inches; Wehadkee—very strongly acid to slightly acid throughout the profile

Parent material: Alluvium from soils that formed in residuum derived from metamorphic or igneous rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- The clayey Roanoke and Wahee soils on the lower terraces
- The well drained Riverview soils and the excessively drained Buncombe soils in the slightly higher landscape positions adjacent to streams and rivers
- The moderately well drained, slowly permeable Helena soils in slight depressions and at the head of drainageways

Similar:

- Areas of Chewacla and Wehadkee soils which have overwash material on the surface

Land Use

Dominant Uses: Wetland wildlife habitat

Other Uses: Unmanaged woodland

Agricultural Development

Cropland

Suitability: Chewacla—poorly suited; Wehadkee—unsuited

Management concerns: Flooding and wetness

Management measures and considerations:

- Because of the potential for flooding during the

growing season, managing this map unit for cropland is difficult.

Pasture and hayland

Suitability: Poorly suited

Management concerns: Flooding, wetness, and soil fertility

Management measures and considerations:

- This map unit has severe limitations affecting the production of pasture and hay crops. A site should be selected on better suited soils.

Woodland

Suitability: Chewacla—well suited; Wehadkee—suited

Productivity class: Moderately high for yellow-poplar

Management measures and considerations:

- Chewacla—equipment use, windthrow hazard, and competition from undesirable plants;
- Wehadkee—equipment use, seedling survival, windthrow hazard, and competition from undesirable plants

Management measures and considerations:

- Restricting the use of standard wheeled and tracked equipment to dry periods helps to prevent the rutting and soil compaction that can occur when the soils are saturated.
- Harvesting timber during summer helps to reduce the risk of damage caused by flooding.
- Maintaining drainageways and planting trees that are tolerant of wetness help to increase seedling survival rates.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Unsited

Management concerns: Flooding and wetness

Management measures and considerations:

- This map unit has severe limitations affecting septic tank absorption fields.
- The local Health Department should be contacted for guidance in developing sanitary facilities.

Dwellings

Suitability: Unsited

Management concerns: Flooding and wetness

Management measures and considerations:

- This map unit has severe limitations affecting

dwellings. A site should be selected on better suited soils.

Small commercial buildings

Suitability: Unsited

Management concerns: Flooding and wetness

Management measures and considerations:

- This map unit has severe limitations affecting small commercial buildings. A site should be selected on better suited soils.

Local roads and streets

Suitability: Unsited

Management concerns: Flooding, wetness, and low strength

Management measures and considerations:

- This map unit has severe limitations affecting roads and streets. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: Chewacla—IVw;
Wehadkee—VIw

Woodland ordination symbol: Based on yellow-poplar as the indicator species, 7W in areas of the Chewacla soil and 8W in areas of the Wehadkee soil

DuA—Duplin sandy loam, 0 to 3 percent slopes

Setting

Landscape: Coastal Plain

Landform: Broad ridges

Landform position: Planar to slightly concave side slopes

Shape of areas: Oblong or irregular

Size of areas: 5 to 100 acres

Composition

Duplin soil and similar soils: 80 percent

Dissimilar soils: 20 percent

Typical Profile

Surface layer:

0 to 11 inches—dark grayish brown sandy loam

Subsurface layer:

11 to 18 inches—pale brown sandy loam

Subsoil:

18 to 24 inches—brownish yellow sandy clay that has pale brown mottles

24 to 48 inches—light olive brown sandy clay that has

light gray and strong brown mottles
48 to 68 inches—light gray sandy clay that has light yellowish brown and yellowish brown mottles
68 to 80 inches—light gray sandy clay that has light yellowish brown and yellowish red mottles

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Moderately well drained

Permeability: Moderately slow

Available water capacity: Moderate

High water table: At a depth of 2.0 to 3.0 feet from December through April

Shrink-swell potential: Moderate

Slope class: Nearly level

Surface runoff: Slow

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: None or slight

Content of organic matter (surface layer): Low

Soil reaction: Very strongly acid or strongly acid throughout the profile, except where the surface layer has been limed

Parent material: Unconsolidated clayey marine sediments over residuum weathered from felsic crystalline rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- The well drained Varina soils on the higher knolls
- Random areas of soils that have a loamy subsoil
- Random areas of soils that have a sandy surface layer more than 20 inches thick
- The poorly drained Rains and Toisnot soils in the slightly lower landscape positions
- The somewhat poorly drained Wahee soils and the poorly drained Roanoke soils in the slightly lower landscape positions
- Random areas of soils that have less clay in the lower part of the subsoil than the Duplin soil

Similar:

- Soils that are similar to the Duplin soil but have a red subsoil

Land Use

Dominant Uses: Cropland, pasture, and hayland

Other Uses: Woodland

Agricultural Development

Cropland

Suitability: Well suited

Management concerns: Erodibility, wetness, and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Installing a subsurface drainage system helps to improve the productivity of moisture-sensitive crops, such as tobacco.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility, wetness, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Preventing overgrazing or preventing grazing when the soil is too wet helps to prevent soil compaction, decreased productivity, and a rough soil surface.
- Installing a subsurface drainage system helps to improve the productivity of moisture-sensitive crops, such as alfalfa.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: High for loblolly pine

Management concerns: Equipment use and seedling survival

Management measures and considerations:

- Logging only during periods when the soil is not saturated helps to prevent rutting and damage to tree roots resulting from soil compaction.
- Planting seedlings during wet, cool periods helps to increase plant survival rates.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Wetness

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Suitable fill material can be used to raise the filter field a sufficient distance above the high water table and thus help to improve the performance of septic systems.

Dwellings

Suitability for dwellings without basements: Suited

Suitability for dwellings with basements: Poorly suited

Management concerns: Wetness

Management measures and considerations:

- Building structures on the highest part of the landscape and using artificial drainage help to reduce the risk of damage caused by wetness.

Small commercial buildings

Suitability: Suited

Management concerns: Wetness

Management measures and considerations:

- Building structures on the highest part of the landscape and using artificial drainage help to reduce the risk of damage caused by wetness.

Local roads and streets

Suitability: Poorly suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.

Interpretive Groups

Land capability classification: IIw

Woodland ordination symbol: 9W, based on loblolly pine as the indicator species

GeB—Georgeville loam, 2 to 6 percent slopes

Setting

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 350 acres

Composition

Georgeville soil and similar soils: 90 percent

Dissimilar soils: 10 percent

Typical Profile

Surface layer:

0 to 8 inches—yellowish brown loam

Subsoil:

8 to 15 inches—strong brown clay loam that has yellowish red mottles

15 to 45 inches—red clay that has yellowish red mottles

45 to 50 inches—red clay loam that has reddish yellow mottles

Underlying material:

50 to 62 inches—red loam saprolite that has reddish yellow and yellowish brown mottles

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Gently sloping

Surface runoff: Medium

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Severe

Content of organic matter (surface layer): Low

Soil reaction: Very strongly acid to neutral in the A horizon; very strongly acid or strongly acid in the B and C horizons

Parent material: Residuum weathered from fine grained metamorphic rock

Depth to bedrock: More than 60 inches

Minor Components**Dissimilar:**

- The deep Tatum soils that have soft bedrock at a depth of less than 60 inches
- Random areas of Georgeville soils which have a gravelly surface layer
- Random areas of the eroded Georgeville soils that have a surface layer of clay loam or sandy clay loam
- Moderately well drained soils in slight depressions and at the head of drainageways

Similar:

- Random areas of Herndon soils that have a yellow or brown subsoil

Land Use

Dominant Uses: Cropland

Other Uses: Pasture, hayland, and woodland

Agricultural Development**Cropland**

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Planting adapted species helps to ensure the production of high-quality forage and reduce the hazard of erosion.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns:

- There are no significant limitations affecting woodland management.
- Management measures and considerations:**
- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.

Urban Development**Septic tank absorption fields**

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting dwellings.

Small commercial buildings*Suitability:* Well suited*Management concerns:*

- There are no significant limitations affecting small commercial buildings.

Local roads and streets*Suitability:* Suited*Management concerns:* Low strength*Management measures and considerations:*

- Providing sand and gravel and compacting roadbeds improve soil strength.

Interpretive Groups*Land capability classification:* IIe*Woodland ordination symbol:* 8A, based on loblolly pine as the indicator species**GeC—Georgeville loam, 6 to 10 percent slopes****Setting***Landscape:* Piedmont*Landform:* Broad ridges and hill slopes*Landform position:* Convex side slopes*Shape of areas:* Irregular*Size of areas:* 5 to 100 acres**Composition**

Georgeville soil and similar soils: 90 percent

Dissimilar soils: 10 percent

Typical Profile*Surface layer:*

0 to 8 inches—yellowish brown loam

Subsoil:

8 to 15 inches—strong brown clay loam that has yellowish red mottles

15 to 45 inches—red clay that has yellowish red mottles

45 to 50 inches—red clay loam that has reddish yellow mottles

Underlying material:

50 to 62 inches—red loam saprolite that has reddish yellow and yellowish brown mottles

Soil Properties and Qualities*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderate*Available water capacity:* Moderate*Depth to high water table:* More than 6.0 feet*Shrink-swell potential:* Low*Slope class:* Moderately sloping*Surface runoff:* Medium*Extent of erosion:* Slight, less than 25 percent of the original surface layer has been removed*Hazard of water erosion:* Very severe*Content of organic matter (surface layer):* Low*Soil reaction:* Very strongly acid to neutral in the A horizon; very strongly acid or strongly acid in the B and C horizons*Parent material:* Residuum weathered from fine grained metamorphic rock*Depth to bedrock:* More than 60 inches**Minor Components***Dissimilar:*

- The deep Tatum soils that have soft bedrock at a depth of less than 60 inches
- Random areas of Georgeville soils which have a gravelly surface layer
- Random areas of the eroded Georgeville soils that have a surface layer of clay loam or sandy clay loam
- Moderately well drained soils in slight depressions and at the head of drainageways

Similar:

- Random areas of Herndon soils that have a yellow or brown subsoil

Land Use**Dominant Uses:** Cropland**Other Uses:** Pasture, hayland, and woodland**Agricultural Development****Cropland***Suitability:* Suited*Management concerns:* Erodibility and soil fertility*Management measures and considerations:*

- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability for pasture: Well suited

Suitability for hayland: Suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Planting adapted species helps to ensure the production of high-quality forage and reduce the hazard of erosion.
- The slope may limit equipment use in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderate for loblolly pine

Management concerns:

- There are no significant limitations affecting woodland management.

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting dwellings.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the

natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.

Interpretive Groups

Land capability classification: IIIe

Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

GgC—Georgeville gravelly loam, 6 to 10 percent slopes

Setting

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 100 acres

Composition

Georgeville soil and similar soils: 95 percent

Dissimilar soils: 5 percent

Typical Profile

Surface layer:

0 to 7 inches—brown gravelly loam

Subsoil:

7 to 26 inches—red clay

26 to 36 inches—red silty clay loam

36 to 45 inches—reddish brown silt loam that has red mottles

Underlying material:

45 to 62 inches—multicolored loam saprolite in shades of red, brown, and yellow

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Moderately sloping

Surface runoff: Medium

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Severe

Content of organic matter (surface layer): Low

Soil reaction: Very strongly acid to neutral in the A horizon; very strongly acid or strongly acid in the B and C horizons

Parent material: Residuum weathered from fine grained metamorphic rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- The deep Tatum soils that have soft bedrock at a depth of less than 60 inches
- Random areas of Georgeville soils that have a loamy surface layer
- Random areas of the eroded Georgeville soils that have a surface layer of clay loam or sandy clay loam
- Moderately well drained soils in slight depressions and at the head of drainageways

Similar:

- Random areas of Herndon soils that have a yellow or brown subsoil

Land Use

Dominant Uses: Cropland

Other Uses: Pasture, hayland, and woodland

Agricultural Development

Cropland

Suitability: Suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Surface pebbles may interfere with the use of some tillage implements.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability for pasture: Well suited

Suitability for hayland: Suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Planting adapted species helps to ensure the production of high-quality forage and reduce the hazard of erosion.
- The slope may limit equipment use in the steeper areas during the harvest of hay crops.
- Surface pebbles may interfere with the use of some tillage implements.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderate for loblolly pine

Management concerns:

- There are no significant limitations affecting woodland management.

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Suited

Management concerns:

- There are no significant limitations affecting dwellings.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.

Interpretive Groups

Land capability classification: IIIe

Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

GhB—Georgeville gravelly loam, 2 to 8 percent slopes, stony**Setting**

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 250 acres

Composition

Georgeville soil and similar soils: 90 percent

Dissimilar soils: 10 percent

Typical Profile

Surface layer:

0 to 6 inches—brown gravelly loam

Subsoil:

6 to 12 inches—strong brown gravelly loam

12 to 48 inches—red clay

48 to 62 inches—red clay loam

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Gently sloping

Surface runoff: Medium

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Moderate

Rock fragments on the surface: Widely scattered stones and cobbles that average about 16 inches in diameter and 30 feet apart

Content of organic matter (surface layer): Low

Soil reaction: Very strongly acid to neutral in the A

horizon; very strongly acid or strongly acid in the B and C horizons

Parent material: Residuum weathered from fine grained amphibolite

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Random areas of the deep Tatum soils that have soft bedrock at a depth of less than 60 inches
- Random areas of Georgeville soils that are nonstony
- Random areas of the eroded Georgeville soils that have a surface layer of clay loam or sandy clay loam
- Random areas of the moderately deep Montonia soils that have a loamy subsoil
- Moderately well drained soils in slight depressions and at the head of drainageways

Similar:

- Random areas of Herndon soils that have a yellow or brown subsoil

Land Use

Dominant Uses: Cropland

Other Uses: Pasture, hayland, and woodland

Agricultural Development**Cropland**

Suitability: Well suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Removing the larger stones and limiting equipment use to the larger open areas help to improve soil workability.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Planting adapted species helps to ensure the production of high-quality forage and reduce the hazard of erosion.

- Removing the larger stones or limiting equipment use to the larger open areas may be necessary.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns:

- There are no significant limitations affecting woodland management.

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting dwellings.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.

Interpretive Groups

Land capability classification: IIe

Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

GkB2—Georgeville clay loam, 2 to 6 percent slopes, eroded

Setting

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 200 acres

Composition

Georgeville soil and similar soils: 95 percent

Dissimilar soils: 5 percent

Typical Profile

Surface layer:

0 to 5 inches—brown clay loam

Subsoil:

5 to 14 inches—red clay

14 to 40 inches—red clay that has yellowish red mottles

40 to 47 inches—yellowish red clay that has reddish yellow and red mottles

47 to 62 inches—reddish yellow silty clay loam

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Gently sloping

Surface runoff: Medium

Extent of erosion: Moderate, about 25 to 75 percent of the original surface layer has been removed

Hazard of water erosion: Severe

Content of organic matter (surface layer): Very low

Soil reaction: Very strongly acid to neutral in the A horizon; very strongly acid or strongly acid in the B and C horizons

Parent material: Residuum weathered from fine grained metamorphic rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Random areas of the deep Tatum soils that have soft bedrock at a depth of less than 60 inches
- Random areas of Georgeville soils that have a gravelly surface layer
- Random areas of Georgeville soils that have a surface layer of loam
- Moderately well drained soils in slight depressions and at the head of drainageways

Similar:

- Random areas of Herndon soils that have a yellow or brown subsoil
- The eroded Georgeville soils that have a surface layer of sandy clay loam

Land Use

Dominant Uses: Cropland

Other Uses: Pasture, hayland, and woodland

Agricultural Development

Cropland

Suitability: Suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Resource management systems that include conservation tillage, crop residue management, stripcropping, and sod-based rotations help to prevent further erosion by stabilizing the soil, controlling surface runoff, and maximizing water infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Planting adapted species helps to ensure the production of high-quality forage and reduce the hazard of erosion.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Equipment use and seedling survival

Management measures and considerations:

- Logging only during periods when the soil is not wet helps to prevent rutting and damage to tree roots as a result of compaction.
- Unsurfaced roads may be impassable during wet periods because of the high content of clay.
- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces seedling mortality, and increases early seedling growth.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting dwellings.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.

Interpretive Groups

Land capability classification: IIIe

Woodland ordination symbol: 8C, based on loblolly pine as the indicator species

GmD—Georgeville-Montonia complex, 8 to 15 percent slopes, very stony

Setting

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 200 acres

Composition

Georgeville soil and similar soils: 55 percent

Montonia soil and similar soils: 30 percent

Dissimilar soils: 15 percent

Typical Profile

Georgeville

Surface layer:

0 to 6 inches—brown gravelly loam

Subsoil:

6 to 12 inches—strong brown gravelly loam

12 to 48 inches—red clay

48 to 62 inches—red clay loam

Montonia

Surface layer:

0 to 7 inches—brown channery loam

Subsoil:

7 to 11 inches—strong brown channery loam

11 to 35 inches—yellowish red clay loam

Bedrock:

35 to 42 inches—weathered, moderately fractured amphibolite

42 inches—unweathered, slightly fractured amphibolite

Soil Properties and Qualities

Depth class: Georgeville—very deep; Montonia—moderately deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Strongly sloping

Surface runoff: Georgeville—medium; Montonia—medium to very rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Georgeville—severe; Montonia—moderate

Rock fragments on the surface: About 2.0 percent stones and cobbles that average about 12 inches in diameter and 14 feet apart

Content of organic matter (surface layer): Low to moderate

Soil reaction: Georgeville—very strongly acid to neutral in the A horizon and very strongly acid or strongly acid in the B and C horizons; Montonia—very strongly acid to moderately acid throughout the profile, except where the surface layer has been limed

Parent material: Georgeville—residuum weathered from fine grained amphibolite; Montonia—residuum weathered from fine grained, high-grade metamorphic amphibolite

Depth to bedrock: Georgeville—more than 60 inches; Montonia—20 to 40 inches to soft bedrock and 40 to 60 inches to hard bedrock

Minor Components

Dissimilar:

- Random areas of soils that have a moderate or high shrink-swell potential
- Random areas of shallow soils that have bedrock at a depth of less than 20 inches
- Random areas of soils that have less clay in the subsoil than the Georgeville and Montonia soils

Similar:

- Random areas of Herndon soils that have a yellow or brown subsoil

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Poorly suited

Management concerns: Georgeville—large stones, erodibility, equipment use, and soil fertility; Montonia—large stones, erodibility, equipment use, rooting depth, and soil fertility

Management measures and considerations:

- Removing the larger stones and limiting equipment use to the larger open areas help to improve soil workability.
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.

- Incorporating plant residue into the soil helps to improve the water-holding capacity and using shallow-rooted crops helps to overcome the moderately deep rooting depth of the Montonia soil.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability for pasture: Well suited

Suitability for hayland: Suited

Management concerns: Georgeville—erodibility, equipment use, and soil fertility; Montonia—erodibility, equipment use, rooting depth, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit equipment use in the steeper areas during the harvest of hay crops.
- Removing the larger stones or limiting equipment use to the larger open areas may be necessary.
- Incorporating plant residue into the soil helps to improve the water-holding capacity and using shallow-rooted crops helps to overcome the moderately deep rooting depth of the Montonia soil.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management measures and considerations: Georgeville—no significant limitations; Montonia—windthrow hazard and competition from undesirable plants

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.
- Planting shallow-rooted trees, such as shortleaf pine, helps to increase plant survival rates.
- In areas of the Montonia soil, periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Georgeville—suited; Montonia—poorly suited

Management concerns: Georgeville—restricted permeability and slope; Montonia—depth to bedrock

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soils are not wet helps to prevent smearing and sealing of trench walls.
- Installing distribution lines on the contour helps to improve performance of the septic tank absorption fields.
- Filter fields located on deeper included soils may perform better than those located on the Georgeville and Montonia soils.

Dwellings

Suitability: Suited

Management concerns: Georgeville—slope; Montonia—slope and depth to bedrock

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Special earthmoving equipment or the drilling and blasting of rock are needed.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Georgeville—low strength and slope; Montonia—slope

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Groups

Land capability classification: IVe

Woodland ordination symbol: Based on loblolly pine as the indicator species, 8A in areas of the Georgeville soil and 8D in areas of the Montonia soil

GmE—Georgeville-Montonia complex, 15 to 30 percent slopes, very stony

Setting

Landscape: Piedmont

Landform: Hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 200 acres

Composition

Georgeville soil and similar soils: 50 percent

Montonia soil and similar soils: 35 percent

Dissimilar soils: 15 percent

Typical Profile

Georgeville

Surface layer:

0 to 6 inches—brown gravelly loam

Subsoil:

6 to 12 inches—strong brown gravelly loam

12 to 48 inches—red clay

48 to 62 inches—red clay loam

Montonia

Surface layer:

0 to 7 inches—brown channery loam

Subsoil:

7 to 11 inches—strong brown gravelly loam

11 to 35 inches—yellowish red clay loam

Bedrock:

35 to 42 inches—weathered, moderately fractured amphibolite

42 inches—unweathered, slightly fractured amphibolite

Soil Properties and Qualities

Depth class: Georgeville—very deep; Montonia—moderately deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Moderately steep

Surface runoff: Georgeville—medium; Montonia—medium to very rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Georgeville—very severe; Montonia—severe

Rock fragments on the surface: About 2.0 percent stones and cobbles that average about 12 inches in diameter and 14 feet apart

Content of organic matter (surface layer): Low to moderate

Soil reaction: Georgeville—very strongly acid to neutral in the A horizon and very strongly acid or strongly acid in the B and C horizons; Montonia—very strongly acid to moderately acid throughout the profile, except where the surface layer has been limed

Parent material: Georgeville—residuum weathered from fine grained amphibolite; Montonia—residuum weathered from fine grained, high-grade metamorphic amphibolite

Depth to bedrock: Georgeville—more than 60 inches; Montonia—20 to 40 inches to soft bedrock and 40 to 60 inches to hard bedrock

Minor Components

Dissimilar:

- Random areas of soils that have a moderate or high shrink-swell potential
- Random areas of shallow soils that have bedrock at a depth of less than 20 inches
- Rock outcrops on the upper side slopes and on small knolls
- Random areas of soils that have more rock fragments in the subsoil than the Georgeville and Montonia soils

Similar:

- Random areas of Herndon soils that have a yellow or brown subsoil

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Poorly suited

Management concerns: Georgeville—erodibility, equipment use, and soil fertility; Montonia—

erodibility, equipment use, rooting depth, and soil fertility

Management measures and considerations:

- This map unit has severe limitations affecting crop production. A site should be selected on better suited soils.

Pasture and hayland

Suitability for pasture: Suited

Suitability for hayland: Poorly suited

Management concerns: Georgeville—erodibility, equipment use, and soil fertility; Montonia—erodibility, equipment use, rooting depth, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Removing the larger stones or limiting equipment use to the larger open areas may be necessary.
- Incorporating plant residue into the soil helps to improve the water-holding capacity and using shallow-rooted crops helps to overcome the moderately deep rooting depth of the Montonia soil.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Georgeville—well suited; Montonia—suited

Productivity class: Moderately high for loblolly pine

Management measures and considerations:

Georgeville—erodibility and equipment use; Montonia—erodibility, equipment use, seedling survival, and windthrow hazard

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.
- Establishing permanent plant cover on roads and landings after logging operations helps to reduce the hazard of erosion and prevent the siltation of streams.
- Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope limitation.
- Planting shallow-rooted trees, such as shortleaf pine, helps to increase plant survival rates.
- In areas of the Montonia soil, periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Georgeville—slope; Montonia—depth to bedrock and slope

Management measures and considerations:

- This map unit has severe limitations affecting septic tank absorption fields. A site should be selected on better suited soils.

Dwellings

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- The slope is a severe limitation affecting dwellings. A site should be selected on better suited soils.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- The slope is a severe limitation affecting small commercial buildings. A site should be selected on better suited soils.

Local roads and streets

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- The slope is a severe limitation affecting local roads and streets. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: VIe

Woodland ordination symbol: 8R, based on loblolly pine as the indicator species

HeB—Helena sandy loam, 2 to 6 percent slopes

Setting

Landscape: Piedmont

Landform: Broad ridges, head of drainageways, and slight depressions

Landform position: Concave head slopes and slightly concave slopes

Shape of areas: Oblong

Size of areas: 5 to 100 acres

Composition

Helena soil and similar soils: 85 percent

Dissimilar soils: 15 percent

Typical Profile

Surface layer:

0 to 4 inches—brown sandy loam

Subsoil:

4 to 10 inches—brownish yellow clay

10 to 20 inches—brownish yellow clay that has strong brown mottles

20 to 25 inches—yellow clay loam that has red and strong brown mottles

25 to 32 inches—light brownish gray, yellowish brown, and yellow clay loam

32 to 39 inches—red, yellowish brown, and light gray clay loam

Underlying material:

39 to 52 inches—multicolored fine sandy loam saprolite in shades of red, yellow, and gray

52 to 62 inches—multicolored gravelly sandy loam saprolite in shades of white, brown, yellow, and gray

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Moderately well drained

Permeability: Slow

Available water capacity: Moderate

High water table: At a depth of 1.5 to 2.5 feet from January through April

Shrink-swell potential: High

Slope class: Gently sloping

Surface runoff: Medium or rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Moderate

Content of organic matter (surface layer): Low

Soil reaction: Extremely acid to strongly acid throughout the profile, except where the surface layer has been limed; in limed areas, typically moderately acid or slightly acid in the upper part of the profile

Parent material: Residuum weathered from a mixture of felsic, intermediate, or mafic igneous or high-grade metamorphic rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- The well drained Vance soils on small knolls and in the higher areas
- The somewhat poorly drained Chewacla soils and

the poorly drained Wehadkee soils in the lower areas that flood

- Random areas of poorly drained soils

Similar:

- Helena soils that have a surface layer of loam or loamy sand

Land Use

Dominant Uses: Cropland and woodland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Well suited

Management concerns: Erodibility, wetness, and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Installing an artificial drainage system helps to reduce the wetness limitation and improves productivity.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility, wetness, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Preventing overgrazing or preventing grazing when the soil is too wet helps to prevent soil compaction, decreased productivity, and a rough soil surface.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Competition from undesirable plants

Management measures and considerations:

- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development**Septic tank absorption fields***Suitability:* Poorly suited*Management concerns:* Wetness and restricted permeability*Management measures and considerations:*

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Suitable fill material can be used to raise the filter field a sufficient distance above the high water table and thus help to improve the performance of septic systems.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings*Suitability:* Poorly suited*Management concerns:* Wetness and shrink-swell potential*Management measures and considerations:*

- Constructing dwellings on raised, well compacted fill material helps to reduce the risk of damage caused by wetness.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.

Small commercial buildings*Suitability:* Poorly suited*Management concerns:* Shrink-swell potential*Management measures and considerations:*

- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.

Local roads and streets*Suitability:* Poorly suited*Management concerns:* Shrink-swell potential and low strength*Management measures and considerations:*

- Removing as much of the clay as possible and increasing the thickness of the base aggregate help to improve soil performance.

- Constructing roads on raised, well compacted fill material helps to overcome the wetness limitation.

Interpretive Groups*Land capability classification:* IIe*Woodland ordination symbol:* 8A, based on loblolly pine as the indicator species**HrB—Herndon loam, 2 to 6 percent slopes****Setting***Landscape:* Piedmont*Landform:* Broad ridges*Landform position:* Convex side slopes*Shape of areas:* Irregular*Size of areas:* 5 to 200 acres**Composition**

Herndon soil and similar soils: 95 percent

Dissimilar soils: 5 percent

Typical Profile*Surface layer:*

0 to 7 inches—dark yellowish brown loam

Subsoil:

7 to 25 inches—brownish yellow clay that has strong brown and red mottles

25 to 40 inches—brownish yellow silty clay loam that has strong brown and red mottles

40 to 53 inches—brownish yellow loam that has strong brown and red mottles

Underlying material:

53 to 62 inches—multicolored loam saprolite in shades of yellow, brown, and red

Soil Properties and Qualities*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderate*Available water capacity:* Moderate*Depth to high water table:* More than 6.0 feet*Shrink-swell potential:* Low*Slope class:* Gently sloping*Surface runoff:* Medium*Extent of erosion:* Slight, less than 25 percent of the original surface layer has been removed*Hazard of water erosion:* Severe*Content of organic matter (surface layer):* Low*Soil reaction:* Very strongly acid to slightly acid in the A

horizon and extremely acid to strongly acid in the B and C horizons

Parent material: Residuum weathered from fine grained metamorphic rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Moderately well drained soils at the head of drainageways and in slight depressions
- Random areas of soils that have soft bedrock at a depth of 40 to 60 inches
- Random areas of the eroded Herndon soils that have a surface layer of clay loam or sandy clay loam

Similar:

- Random areas of Georgeville soils that have a red subsoil

Land Use

Dominant Uses: Cropland

Other Uses: Pasture, hayland, and woodland

Agricultural Development

Cropland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns:

- There are no significant limitations affecting woodland management.

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting dwellings.

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Small commercial buildings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting small commercial buildings.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups

Land capability classification: IIe

Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

HrC—Herndon loam, 6 to 10 percent slopes

Setting

Landscape: Piedmont

Landform: Broad ridges

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 200 acres

Composition

Herndon soil and similar soils: 85 percent

Dissimilar soils: 15 percent

Typical Profile

Surface layer:

0 to 7 inches—dark yellowish brown loam

Subsoil:

7 to 25 inches—brownish yellow clay that has strong brown and red mottles

25 to 40 inches—brownish yellow silty clay loam that has strong brown and red mottles

40 to 53 inches—brownish yellow loam that has strong brown and red mottles

Underlying material:

53 to 62 inches—multicolored loam saprolite in shades of yellow, brown, and red

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Moderately sloping

Surface runoff: Medium

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Very severe

Content of organic matter (surface layer): Low

Soil reaction: Very strongly acid to slightly acid in the A horizon; extremely acid to strongly acid in the B and C horizons

Parent material: Residuum weathered from fine grained metamorphic rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Moderately well drained soils at the head of drainageways and in slight depressions

- Random areas of soils that have soft bedrock at a depth of 40 to 60 inches
- Random areas of the eroded Herndon soils that have a surface layer of clay loam or sandy clay loam

Similar:

- Random areas of Georgeville soils that have a red subsoil

Land Use

Dominant Uses: Cropland

Other Uses: Pasture, hayland, and woodland

Agricultural Development

Cropland

Suitability: Suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit equipment use in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns:

- There are no significant limitations affecting woodland management.

Management measures and considerations:

- Planting the appropriate species, as recommended

by a forester, helps to maximize productivity and ensure planting success.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting dwellings.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength and slope

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Groups

Land capability classification: IIIe

Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

M-W—Miscellaneous water

Setting

Landscape: Piedmont and Coastal Plain

Landform: Flood plains and low terraces

Shape of areas: Irregular

Size of areas: 3 to more than 100 acres

Description

This map unit mainly consists of bodies of water that formed mostly from the activity of beavers. The impoundment may be breached at any time, and the site returned to its previous state. The unit also includes sewage lagoons and small areas of water impounded by road construction.

Interpretive Groups

Land capability classification: VIIIs

Woodland ordination symbol: None assigned

PaC2—Pacolet clay loam, 6 to 10 percent slopes, eroded

Setting

Landscape: Piedmont

Landform: Narrow ridges and hill slopes

Landform position: Side slopes

Shape of areas: Irregular

Size of areas: 10 to 100 acres

Composition

Pacolet soil and similar soils: 85 percent

Dissimilar soils: 15 percent

Typical Profile

Surface layer:

0 to 4 inches—dark brown sandy loam

Subsoil:

4 to 27 inches—red clay

27 to 37 inches—red clay loam

Underlying material:

37 to 52 inches—multicolored loam saprolite in shades of red, brown, and yellow

52 to 62 inches—multicolored sandy loam saprolite in shades of yellow, red, and brown

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: High

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Moderately sloping

Surface runoff: Medium or rapid

Extent of erosion: Moderate, about 25 to 75 percent of the original surface layer has been removed

Hazard of water erosion: Very severe

Content of organic matter (surface layer): Low

Soil reaction: Very strongly acid to slightly acid in the A horizon; very strongly acid to moderately acid throughout the rest of the profile

Parent material: Residuum weathered from high-grade metamorphic or igneous rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Random areas of Saw soils which have bedrock at a depth of 20 to 40 inches
- Random areas of the uneroded Pacolet soils which have a thicker surface layer than the Pacolet soil
- Random areas of the uneroded Cecil soils which have a thicker surface layer and a thicker subsoil than the Pacolet soil
- The moderately well drained, slowly permeable Helena soils in slight depressions and at the head of drainageways

Similar:

- Eroded soils that are similar to the Pacolet soil but have a thicker subsoil
- The eroded Pacolet soils that have a surface layer of sandy clay loam
- Random areas of Wedowee soils that have a yellow subsoil

Land Use

Dominant Uses: Cropland

Other Uses: Pasture, hayland, and woodland

Agricultural Development

Cropland

Suitability: Poorly suited

Management concerns: Erodibility, tillage, and soil fertility

Management measures and considerations:

- Resource management systems that include conservation tillage, crop residue management, stripcropping, and sod-based rotations help to prevent further soil erosion by stabilizing the soil, controlling surface runoff, and maximizing water infiltration.
- Tilling only when the soil is not wet helps to prevent clodding and crusting and increase water infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit equipment use in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Equipment use and seedling survival

Management measures and considerations:

- Unsurfaced roads may be impassable during wet periods because of the high content of clay.
- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces seedling mortality, and increases early seedling growth.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting dwellings.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups

Land capability classification: IVe

Woodland ordination symbol: 6C, based on loblolly pine as the indicator species

PaD2—Pacolet clay loam, 10 to 15 percent slopes, eroded**Setting**

Landscape: Piedmont

Landform: Narrow ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Long and narrow

Size of areas: 5 to 50 acres

Composition

Pacolet soil and similar soils: 90 percent

Dissimilar soils: 10 percent

Typical Profile

Surface layer:

0 to 4 inches—dark brown sandy loam

Subsoil:

4 to 27 inches—red clay

27 to 37 inches—red clay loam

Underlying material:

37 to 52 inches—multicolored loam saprolite in shades of red, brown, and yellow

52 to 62 inches—multicolored sandy loam saprolite in shades of yellow, red, and brown

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Strongly sloping

Surface runoff: Medium or rapid

Extent of erosion: Moderate, about 25 to 75 percent of the original surface layer has been removed

Hazard of water erosion: Very severe

Content of organic matter (surface layer): Low

Soil reaction: Very strongly acid to slightly acid in the A horizon; very strongly acid to moderately acid throughout the rest of the profile

Parent material: Residuum weathered from high-grade metamorphic or igneous rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Random areas of the moderately deep Saw soils that have bedrock at a depth of 20 to 40 inches
- Random areas of the shallow Wake soils that have bedrock at a depth of less than 20 inches

Similar:

- Random areas of the eroded Cecil soils that have a deeper subsoil than the Pacolet soil
- The eroded Pacolet soils that have a surface layer of sandy clay loam
- Random areas of the eroded Wedowee soils that have a yellow subsoil

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Agricultural Development**Cropland**

Suitability: Poorly suited

Management concerns: Erodibility, tillage, and soil fertility

Management measures and considerations:

- Resource management systems that include conservation tillage, crop residue management, stripcropping, and sod-based rotations help to prevent further erosion by stabilizing the soil, controlling surface runoff, and maximizing water infiltration.
- Tilling only when the soil is not wet helps to prevent clodding and crusting and increase water infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability for pasture: Well suited

Suitability for hayland: Suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the

slope helps to reduce the hazard of erosion and increase germination.

- The slope may limit equipment use in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Equipment use and seedling survival

Management measures and considerations:

- Unsurfaced roads may be impassable during wet periods because of the high content of clay.
- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces seedling mortality, and increases early seedling growth.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability and slope

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.
- Installing distribution lines on the contour helps to improve performance of the septic tank absorption fields.

Dwellings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength and slope

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Groups

Land capability classification: VIe

Woodland ordination symbol: 6C, based on loblolly pine as the indicator species

PuC—Pacolet-Urban land complex, 2 to 10 percent slopes

Setting

Landscape: Piedmont

Landform: Narrow ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 200 acres

Composition

Pacolet soil and similar soils: 55 percent

Urban land: 30 percent

Dissimilar soils: 15 percent

Typical Profile

Pacolet

Surface layer:

0 to 3 inches—dark brown sandy loam

3 to 6 inches—brown sandy loam

Subsoil:

6 to 9 inches—strong brown sandy clay loam

9 to 14 inches—red clay

14 to 21 inches—red clay loam that has strong brown mottles

21 to 31 inches—yellowish red clay loam that has strong brown and very pale brown mottles

Underlying material:

31 to 36 inches—red sandy clay loam that has mottles in shades of brown and yellow

36 to 70 inches—multicolored fine sandy loam

saprolite in shades of brown, yellow, and white

Urban land

Urban land consists of areas that are covered with

roads, parking lots, closely spaced houses, buildings, or other structures. Identification of the soils in these areas is not feasible because they are covered or altered.

Properties and Qualities of the Pacolet Soil

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Gently sloping or moderately sloping

Surface runoff: Medium or rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Moderate or severe

Content of organic matter (surface layer): Low

Soil reaction: Very strongly acid to slightly acid in the A horizon; very strongly acid to moderately acid throughout the rest of the profile

Parent material: Residuum weathered from high-grade metamorphic or igneous rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- The moderately well drained Helena soils in slight depressions and at head of drainageways
- Random areas of the moderately deep Saw soils that have hard bedrock at a depth of 20 to 40 inches
- Random areas of the eroded Pacolet soils that have a surface layer of clay loam or sandy clay loam

Similar:

- Random areas of Wedowee soils that have a yellow subsoil

Land Use

Dominant Uses: Urban land

Other Uses: Building site development

Agricultural Development

Cropland

Suitability: Poorly suited

Management concerns: Limited size of areas

Management measures and considerations:

- Soils in this map unit are difficult to manage for crop production because of the limited size of its areas, intermittent areas of Urban land, and areas of highly disturbed soils.

Pasture and hayland

Suitability: Poorly suited

Management concerns: Limited size of areas

Management measures and considerations:

- Soils in this map unit are difficult to manage for the production of pasture and hay crops because of the limited size of its areas, intermittent areas of Urban land, and areas of highly disturbed soils.

Woodland

Suitability: Poorly suited

Management concerns: Limited size of areas

Management measures and considerations:

- Soils in this map unit are difficult to manage for timber production because of the limited size of its areas, intermittent areas of Urban land, and areas of highly disturbed soils.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting dwellings.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups

Land capability classification: Pacolet—IIIe; Urban land—VIIIs

Woodland ordination symbol: None assigned

RaA—Rains-Toisnot complex, 0 to 2 percent slopes

Setting

Landscape: Coastal Plain

Landform: Rains—marine terraces; Toisnot—depressions, head of drainageways, and the outer edge of stream terraces

Landform position: Planar to slightly concave slopes

Shape of areas: Long and narrow

Size of areas: 5 to 200 acres

Composition

Rains soil and similar soils: 60 percent

Toisnot soil and similar soils: 30 percent

Dissimilar soils: 10 percent

Typical Profile

Rains

Surface layer:

0 to 4 inches—very dark gray loam

4 to 7 inches—dark gray loam

Subsurface layer:

7 to 12 inches—white sandy loam that has light gray mottles

Subsoil:

12 to 20 inches—light gray clay loam that has light yellowish brown and strong brown mottles

20 to 38 inches—light brownish gray clay loam that has light gray, strong brown, and yellowish red mottles

38 to 62 inches—light gray, white, and light brownish gray clay loam that has yellowish red and yellowish brown mottles

Underlying material:

62 to 80 inches—light gray, white, and light brownish gray fine sandy loam that has light yellowish brown mottles

Toisnot

Surface layer:

0 to 5 inches—very dark gray sandy loam

Subsurface layer:

5 to 10 inches—gray loamy fine sand that has light gray mottles

Subsoil:

10 to 15 inches—dark grayish brown and light gray sandy loam

15 to 25 inches—light gray and white sandy loam that has light yellowish brown and yellowish brown mottles

25 to 37 inches—white fine sandy loam that has light gray and light yellowish brown mottles

37 to 46 inches—white fine sandy loam

Underlying material:

46 to 80 inches—white sandy clay that has light gray and light yellowish brown mottles

Soil Properties and Qualities

Depth class: Rains—very deep; Toisnot—moderately deep to root-limiting layer

Drainage class: Poorly drained

Permeability: Rains—moderate; Toisnot—slow

Available water capacity: Moderate

High water table: Rains—within a depth of 1.0 foot from November through April; Toisnot—within a depth of 1.0 foot from December through April

Shrink-swell potential: Low

Slope class: Nearly level

Surface runoff: Rains—slow; Toisnot—slow to ponded

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: None or slight

Content of organic matter (surface layer): Rains—low to high; Toisnot—low

Soil reaction: Rains—extremely acid to slightly acid in the A and E horizons, except where the surface layer has been limed, and extremely acid to strongly acid throughout the rest of the profile; Toisnot—extremely acid to strongly acid throughout the profile, except where the surface layer has been limed

Parent material: Fluvial or marine sediments

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Random areas of clayey soils in landscape positions similar to those of the Rains and Toisnot soils
- Random areas of somewhat poorly drained soils in the slightly higher landscape positions

Similar:

- Random areas of soils that are similar to the Rains and Toisnot soils but have a thinner subsoil

Land Use

Dominant Uses: Wetland wildlife habitat

Other Uses: Unmanaged woodland

Agricultural Development

Cropland

Suitability: Poorly suited

Management concerns: Rains—ponding, wetness, soil fertility, and competition from undesirable plants; Toisnot—wetness, root penetration, soil fertility, and competition from undesirable plants

Management measures and considerations:

- This map unit has severe limitations affecting crop production. A site should be selected on better suited soils.

Pasture and hayland

Suitability: Poorly suited

Management concerns: Rains—ponding, wetness, and soil fertility; Toisnot—wetness, root penetration, and soil fertility

Management measures and considerations:

- This map unit has severe limitations affecting the production of pasture and hay crops. A site should be selected on better suited soils.

Woodland

Suitability: Suited

Productivity class: High for loblolly pine

Management concerns: Equipment use, seedling survival, windthrow hazard, and competition from undesirable plants

Management measures and considerations:

- Using low-pressure ground equipment helps to prevent rutting and damage to tree roots resulting from soil compaction.
- Maintaining drainageways and planting trees that are tolerant of wetness help to increase seedling survival rates.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity.
- Prescribed burning helps to reduce competition with hardwood species.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Rains—wetness; Toisnot—cemented pan and wetness

Management measures and considerations:

- This map unit has severe limitations affecting septic tank absorption fields.
- The local Health Department should be contacted for guidance in developing sanitary facilities.

Dwellings

Suitability: Poorly suited

Management concerns: Wetness

Management measures and considerations:

- The wetness is a severe limitation affecting dwellings. A site should be selected on better suited soils.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Wetness

Management measures and considerations:

- The wetness is a severe limitation affecting small commercial buildings. A site should be selected on better suited soils.

Local roads and streets

Suitability: Poorly suited

Management concerns: Wetness

Management measures and considerations:

- The wetness is a severe limitation affecting roads and streets. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: Rains—IIIw; Toisnot—Vw

Woodland ordination symbol: 9W, based on loblolly pine as the indicator species

ReD—Rion-Wateree-Wedowee complex, 8 to 15 percent slopes

Setting

Landscape: Piedmont

Landform: Narrow ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 100 acres

Composition

Rion soil and similar soils: 35 percent

Wateree soil and similar soils: 30 percent

Wedowee soil and similar soils: 20 percent

Dissimilar soils: 15 percent

Typical Profile

Rion

Surface layer:

0 to 5 inches—very dark grayish brown sandy loam

5 to 8 inches—brown sandy loam

Subsurface layer:

8 to 16 inches—brownish yellow sandy loam

Subsoil:

16 to 26 inches—yellowish brown clay loam

26 to 34 inches—yellowish brown sandy clay loam that has black, white, and yellow streaks

Underlying material:

34 to 65 inches—multicolored sandy clay loam saprolite in shades of brown, yellow, and white

Wateree*Surface layer:*

0 to 7 inches—olive brown sandy loam

Subsoil:

7 to 18 inches—dark yellowish brown sandy loam

18 to 28 inches—yellowish brown sandy loam

Underlying material:

28 to 35 inches—multicolored sandy loam saprolite in shades of red, brown, and yellow

Bedrock:

35 to 50 inches—weathered, highly fractured porphyritic granite

50 to 72 inches—moderately fractured porphyritic granite

Wedowee*Surface layer:*

0 to 5 inches—yellowish brown sandy loam

Subsoil:

5 to 10 inches—yellow sandy clay loam

10 to 18 inches—brownish yellow clay loam that has red mottles

18 to 23 inches—brownish yellow sandy clay that has red mottles

23 to 35 inches—brownish yellow clay loam that has red and yellowish red mottles

Underlying material:

35 to 40 inches—multicolored sandy clay loam saprolite in shades of yellow, red, brown, and white

40 to 62 inches—multicolored sandy loam saprolite in shades of yellow, red, brown, and white

Soil Properties and Qualities

Depth class: Rion and Wedowee—very deep; Wateree—moderately deep

Drainage class: Well drained

Permeability: Rion and Wedowee—moderate; Wateree—moderately rapid

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Strongly sloping

Surface runoff: Rion and Wedowee—medium or rapid; Wateree—medium

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Severe

Content of organic matter (surface layer): Rion and Wateree—low; Wedowee—low to moderate

Soil reaction: Rion—very strongly acid to slightly acid throughout the profile, except where the surface layer has been limed; Wateree—very strongly acid to moderately acid in the A and B horizons and extremely acid to moderately acid in the C horizon; Wedowee—extremely acid to strongly acid throughout the profile, except where the surface layer has been limed

Parent material: Residuum weathered from felsic crystalline rock

Depth to bedrock: Rion and Wedowee—more than 60 inches; Wateree—20 to 40 inches to soft bedrock

Minor Components*Dissimilar:*

- Rock outcrops on the upper side slopes and on small knolls
- Soils that have hard bedrock at a depth of less than 20 inches
- Soils that have cobbles or larger fragments on the surface

Similar:

- Random areas of Rion, Wateree, and Wedowee soils that have a surface layer of loam

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Agricultural Development**Cropland**

Suitability: Poorly suited

Management concerns: Rion and Wedowee—erodibility and soil fertility; Wateree—erodibility, rooting depth, and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Incorporating plant residue into the soil helps to

improve the water-holding capacity and using shallow-rooted crops helps to overcome the moderately deep rooting depth of the Wateree soil.

- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability for pasture: Well suited

Suitability for hayland: Suited

Management concerns: Rion and Wedowee—erodibility, equipment use, and soil fertility; Wateree—erodibility, equipment use, rooting depth, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit equipment use in the steeper areas during the harvest of hay crops.
- Incorporating plant residue into the soil helps to improve the water-holding capacity and using shallow-rooted crops helps to overcome the moderately deep rooting depth of the Wateree soil.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management measures and considerations: Rion—no significant limitations; Wateree—windthrow hazard; Wedowee—competition from undesirable plants

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Rion and Wedowee—suited; Wateree—poorly suited

Management concerns: Rion—slope; Wateree—depth to bedrock; Wedowee—restricted permeability and slope

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Filter fields located on deeper included soils may perform better than those located on the Rion, Wateree, and Wedowee soils.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soils are not wet helps to prevent smearing and sealing of trench walls.
- Installing distribution lines on the contour helps to improve performance of septic tank absorption fields.

Dwellings

Suitability: Suited

Management concerns: Rion and Wedowee—slope; Wateree—depth to bedrock and slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Special earthmoving equipment or the drilling and blasting of rock are needed in areas of the Wateree soil.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Rion and Wateree—slope; Wedowee—low strength and slope

Management measures and considerations:

- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.
- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups

Land capability classification: Rion and Wedowee—IVe; Wateree—VIe

Woodland ordination symbol: Based on loblolly pine as the indicator species, 8A in areas of the Rion and

Wedowee soils and 7A in areas of the Wateree soil

RmA—Riverview and Buncombe soils, 0 to 3 percent slopes, frequently flooded

Setting

Landscape: Piedmont and Coastal Plain

Landform: Flood plains

Landform position: Riverview—slightly higher slopes; Buncombe—natural levees

Shape of areas: Long and narrow

Size of areas: 5 to 400 acres

Composition

Riverview soil and similar soils: 50 percent

Buncombe soil and similar soils: 35 percent

Dissimilar soils: 15 percent

Typical Profile

Riverview

Surface layer:

0 to 8 inches—dark yellowish brown loam

Subsoil:

8 to 20 inches—yellowish brown silt loam

20 to 48 inches—yellowish brown loam

48 to 54 inches—yellowish brown loam that has light yellowish brown mottles

54 to 62 inches—yellowish brown loam that has light gray mottles

Buncombe

Surface layer:

0 to 7 inches—dark yellowish brown loamy fine sand

Subsoil:

7 to 15 inches—yellowish brown loamy fine sand

Underlying material:

15 to 48 inches—light yellowish brown fine sand

48 to 62 inches—yellowish brown loamy fine sand

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Riverview—well drained; Buncombe—excessively drained

Permeability: Riverview—moderate; Buncombe—rapid or very rapid

Available water capacity: Riverview—high; Buncombe—low

High water table: Riverview—at a depth of 3.0 to 5.0 feet from December through March; Buncombe—at a depth of more than 6.0 feet

Shrink-swell potential: Low

Slope class: Nearly level to gently sloping

Hazard of flooding: Frequent flooding from January through December for periods of 2 to 7 days (fig. 3)

Surface runoff: Riverview—slow; Buncombe—very slow

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: None or slight

Content of organic matter (surface layer): Low

Soil reaction: Riverview—very strongly acid to slightly acid in the A horizon and very strongly acid to moderately acid in the B and C horizons; Buncombe—very strongly acid to slightly acid throughout the profile

Parent material: Alluvium from soils that formed in residuum derived from metamorphic and igneous rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- The somewhat poorly drained Chewacla soils and the poorly drained Wehadkee soils in depressions and in backwater areas away from the main channel
- The moderately well drained, rarely flooded Altavista soils in the higher areas

Similar:

- Random areas of Riverview and Buncombe soils that have overwash material on the surface

Land Use

Dominant Uses: Unmanaged woodland

Other Uses: Pasture and recreational development

Agricultural Development

Cropland

Suitability: Riverview—poorly suited; Buncombe—unsuited

Management concerns: Flooding

Management measures and considerations:

- Because of the potential for flooding during the growing season, managing this map unit for cropland is difficult.

Pasture and hayland

Suitability: Poorly suited

Management concerns: Flooding

Management measures and considerations:

- The flooding is a severe limitation affecting the



Figure 3.—A flooded area of Riverview and Buncombe soils, 0 to 3 percent slopes, frequently flooded. Flooding occurs frequently along the Tar River throughout the year and lasts for periods of 2 to 7 days.

production of pasture and hay crops. A site should be selected on better suited soils.

- Harvesting hay crops as early as possible helps to reduce the risk of damage caused by flooding.
- Flooding may pose a hazard to livestock.

Woodland

Suitability: Well suited

Productivity class: High for loblolly pine

Management measures and considerations:

Riverview—equipment use and seedling survival;

Buncombe—competition from undesirable plants

Management measures and considerations:

- Using low-pressure ground equipment helps to prevent rutting and damage to tree roots resulting from soil compaction.
- Harvesting timber during summer helps to reduce the risk of damage caused by flooding.

- Maintaining drainageways and planting trees that are tolerant of wetness help to increase seedling survival rates.
- Bedding the soil prior to planting helps to establish seedlings and increases their survival.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Unsited

Management concerns: Riverview—flooding and wetness; Buncombe—flooding and poor filtering capacity

Management measures and considerations:

- This map unit has severe limitations affecting septic tank absorption fields.
- The local Health Department should be contacted for guidance in developing sanitary facilities.

Dwellings

Suitability: Unsited

Management concerns: Flooding

Management measures and considerations:

- The flooding is a severe limitation affecting dwellings. A site should be selected on better suited soils.

Small commercial buildings

Suitability: Unsited

Management concerns: Flooding

Management measures and considerations:

- The flooding is a severe limitation affecting small commercial buildings. A site should be selected on better suited soils.

Local roads and streets

Suitability: Unsited

Management concerns: Flooding

Management measures and considerations:

- The flooding is a severe limitation affecting roads and streets. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: Riverview—IVw; Buncombe—Vw

Woodland ordination symbol: Based on loblolly pine as the indicator species, 11A in areas of the Riverview soil and 9S in areas of the Buncombe soil

RoA—Roanoke-Wahee complex, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape: Coastal Plain

Landform: Roanoke—flood plains and stream terraces; Wahee—marine terraces and large stream terraces

Landform position: Planar to slightly concave slopes

Shape of areas: Long and narrow or irregular

Size of areas: 5 to 150 acres

Composition

Roanoke soil and similar soils: 45 percent

Wahee soil and similar soils: 40 percent

Dissimilar soils: 15 percent

Typical Profile

Roanoke

Surface layer:

0 to 5 inches—dark grayish brown silt loam

Subsoil:

5 to 16 inches—gray silty clay loam

16 to 38 inches—dark gray clay that has light gray and strong brown mottles

38 to 45 inches—dark gray clay that has gray and strong brown mottles

45 to 51 inches—light brownish gray clay that has light gray and yellowish brown mottles

Underlying material:

51 to 62 inches—dark greenish gray, gray, and greenish gray sandy clay loam

Wahee

Surface layer:

0 to 4 inches—brown silt loam

Subsurface layer:

4 to 11 inches—light yellowish brown fine sandy loam that has very pale brown mottles

Subsoil:

11 to 17 inches—light yellowish brown clay loam that has white and brownish yellow mottles

17 to 33 inches—light brownish gray clay that has pale brown and yellowish red mottles

33 to 40 inches—light gray clay loam that has yellowish brown mottles

40 to 49 inches—light gray clay loam that has white mottles

49 to 62 inches—light brownish gray clay that has white and brownish yellow mottles

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Roanoke—poorly drained; Wahee—somewhat poorly drained

Permeability: Roanoke—very slow and slow; Wahee—slow

Available water capacity: Moderate

High water table: Roanoke—within a depth of 1.0 foot from November through May; Wahee—at a depth of 0.5 foot to 1.5 feet from December through March

Shrink-swell potential: Low to moderate

Slope class: Nearly level or gently sloping

Hazard of flooding: Occasional flooding from November through June for periods of 2 to 7 days

Surface runoff: Slow

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Roanoke—moderate; Wahee—none or slight

Content of organic matter (surface layer): Roanoke—low; Wahee—low to high

Soil reaction: Roanoke—extremely acid to strongly acid in the A and B horizons, except where the surface layer has been limed, and extremely acid to slightly acid in the C horizon; Wahee—very strongly acid to moderately acid in the A horizon, except where the surface layer has been limed, and extremely acid to strongly acid throughout the rest of the profile

Parent material: Roanoke—clayey alluvial or marine sediments; Wahee—clayey marine or fluvial sediments

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Random areas of the loamy Chewacla and Wehadkee soils on flood plains
- Moderately well drained soils in the slightly higher landscape positions

Similar:

- Random areas of Roanoke and Wahee soils that have overwash material on the surface

Land Use

Dominant Uses: Unmanaged woodland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Poorly suited

Management concerns: Flooding, wetness, and soil fertility

Management measures and considerations:

- This map unit has severe limitations affecting crop production. A site should be selected on better suited soils.

Pasture and hayland

Suitability: Poorly suited

Management concerns: Flooding, wetness, soil fertility, and competition from undesirable plants

Management measures and considerations:

- This map unit has severe limitations affecting the production of pasture and hay crops. A site should be selected on better suited soils.

Woodland

Suitability: Roanoke—suited; Wahee—well suited

Productivity class: High for loblolly pine

Management measures and considerations:

Equipment use, seedling survival, and competition from undesirable plants

Management measures and considerations:

- Establishing a buffer zone of trees and shrubs in areas adjacent to streams helps to prevent siltation and provides shade for the water surface.
- Using low-pressure ground equipment helps to prevent rutting and damage to tree roots resulting from soil compaction.
- Harvesting timber during summer helps to reduce the risk of damage caused by flooding.
- Maintaining drainageways and planting trees that are tolerant of wetness help to increase seedling survival rates.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Unsited

Management concerns: Flooding, wetness, and restricted permeability

Management measures and considerations:

- This map unit has severe limitations affecting septic tank absorption fields.
- The local Health Department should be contacted for guidance in developing sanitary facilities.

Dwellings

Suitability: Unsited

Management concerns: Flooding and wetness

Management measures and considerations:

- The flooding and wetness are severe limitations affecting dwellings. A site should be selected on better suited soils.

Small commercial buildings*Suitability:* Unsited*Management concerns:* Flooding and wetness*Management measures and considerations:*

- The flooding and wetness are severe limitations affecting small commercial buildings. A site should be selected on better suited soils.

Local roads and streets*Suitability:* Unsited*Management concerns:* Low strength, flooding, and wetness*Management measures and considerations:*

- This map unit has severe limitations affecting roads and streets. A site should be selected on better suited soils.

Interpretive Groups*Land capability classification:* Roanoke—IVw; Wahee—IIw*Woodland ordination symbol:* Based on loblolly pine as the indicator species, 10W in areas of the Roanoke soil and 9W in areas of the Wahee soil**RwC—Rock outcrop-Wake complex, 2 to 10 percent slopes****Setting***Landscape:* Piedmont*Landform:* Narrow ridges, knolls, and hill slopes*Landform position:* Convex side slopes*Shape of areas:* Rounded*Size of areas:* 0.5 acre to 2.0 acres**Composition**

Rock outcrop: 50 percent

Wake soil and similar soils: 45 percent

Dissimilar soils: 5 percent

Typical Profile**Rock outcrop**

This component of the map unit consists of exposures of bare bedrock or large granitic rock domes that range from 0.5 acre to 2.0 acres in size.

Wake*Surface layer:*

0 to 7 inches—yellowish brown gravelly loamy coarse sand

Underlying material:

7 to 11 inches—reddish yellow loamy sand

Bedrock:

11 to 16 inches—weathered, moderately fractured porphyritic granite

16 inches—unweathered, slightly fractured porphyritic granite

Properties and Qualities of the Wake Soil*Depth class:* Shallow*Drainage class:* Excessively drained*Permeability:* Rapid*Available water capacity:* Very low*Depth to high water table:* More than 6.0 feet*Shrink-swell potential:* Low*Slope class:* Gently sloping or moderately sloping*Surface runoff:* Medium or rapid*Extent of erosion:* Slight, less than 25 percent of the original surface layer has been removed*Hazard of water erosion:* Moderate or severe*Content of organic matter (surface layer):* Low*Soil reaction:* Very strongly acid to moderately acid throughout the profile, except where the surface layer has been limed*Parent material:* Residuum weathered from coarse grained felsic crystalline rock*Depth to bedrock:* 8 to 20 inches to hard bedrock**Minor Components***Dissimilar:*

- Random areas of soils that have bedrock at a depth of 20 to 40 inches

Similar:

- Soils that are similar to the Wake soil but have soft bedrock to a depth of more than 30 inches

Land Use**Dominant Uses:** Pasture**Other Uses:** Woodland**Agricultural Development****Cropland***Suitability:* Unsited*Management concerns:* Limited size of areas

Management measures and considerations:

- This map unit is unsuited to crop production because of rockiness and the small size of its areas. A site should be selected on better suited soils.

Pasture and hayland*Suitability:* Unsuitied*Management concerns:* Limited size of areas*Management measures and considerations:*

- This map unit is unsuited to the production of pasture and hay crops because of rockiness and the small size of its areas. A site should be selected on better suited soils.

Woodland*Suitability:* Unsuitied*Management measures and considerations:* Limited size of areas*Management measures and considerations:*

- This map unit is unsuited to woodland production because of rockiness and the small size of its areas. A site should be selected on better suited soils.

Urban Development**Septic tank absorption fields***Suitability:* Unsuitied*Management concerns:* Depth to bedrock*Management measures and considerations:*

- This map unit has severe limitations affecting septic tank absorption fields.
- The local Health Department should be contacted for guidance in developing sanitary facilities.

Dwellings*Suitability:* Poorly suited*Management concerns:* Depth to bedrock*Management measures and considerations:*

- Special earthmoving equipment or the drilling and blasting of rock are needed.

Small commercial buildings*Suitability:* Poorly suited*Management concerns:* Depth to bedrock*Management measures and considerations:*

- Special earthmoving equipment or the drilling and blasting of rock are needed.

Local roads and streets*Suitability:* Poorly suited*Management concerns:* Depth to bedrock*Management measures and considerations:*

- Blasting or special grading equipment may be needed to construct roads.

Interpretive Groups*Land capability classification:* Rock outcrop—VIII_s; Wake—IV_s*Woodland ordination symbol:* None assigned**StA—State loam, 0 to 3 percent slopes, rarely flooded****Setting***Landscape:* Piedmont and Coastal Plain*Landform:* Stream terraces*Landform position:* Planar slopes*Shape of areas:* Long and narrow*Size of areas:* 5 to 100 acres**Composition**

State soil and similar soils: 90 percent

Dissimilar soils: 10 percent

Typical Profile*Surface layer:*

0 to 10 inches—brown loam

Subsoil:

10 to 36 inches—strong brown clay loam

36 to 48 inches—yellowish brown sandy clay loam

Underlying material:

48 to 62 inches—light yellowish brown loamy fine sand that has thin strata of gravelly loam and brownish yellow mottles

Soil Properties and Qualities*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderate*Available water capacity:* Moderate*High water table:* At a depth of 4.0 to 6.0 feet from December through June*Shrink-swell potential:* Low*Slope class:* Nearly level*Hazard of flooding:* Rare*Surface runoff:* Slow or medium*Extent of erosion:* Slight, less than 25 percent of the original surface layer has been removed*Hazard of water erosion:* None or slight*Content of organic matter (surface layer):* Low*Soil reaction:* Extremely acid to strongly acid in the upper part of the B horizon, except where the surface layer has been limed; extremely acid to slightly acid in the lower part of the B horizon and in the C horizon

Parent material: Loamy alluvium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- The moderately well drained Altavista soils in the slightly lower landscape positions
- Random areas of clayey soils in landscape positions similar to those of the State soil

Similar:

- Random areas of soils that are similar to the State soil but have a red subsoil

Land Use

Dominant Uses: Cropland

Other Uses: Pasture, hayland, and woodland

Agricultural Development

Cropland

Suitability: Well suited

Management concerns: Flooding and soil fertility

Management measures and considerations:

- Harvesting row crops as early as possible helps to reduce the risk of damage caused by flooding.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Flooding and soil fertility

Management measures and considerations:

- Harvesting hay crops as early as possible helps to reduce the risk of damage caused by flooding.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: High for loblolly pine

Management concerns: Competition from undesirable plants

Management measures and considerations:

- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Flooding, wetness, and restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Suitable fill material can be used to raise the filter field a sufficient distance above the high water table and thus help to improve the performance of septic systems.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Poorly suited

Management concerns: Flooding

Management measures and considerations:

- Building structures on the highest part of the landscape helps to reduce the risk of damage caused by flooding.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Flooding

Management measures and considerations:

- Building structures on the highest part of the landscape helps to reduce the risk of damage caused by flooding.

Local roads and streets

Suitability: Suited

Management concerns: Low strength and flooding

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.
- Well compacted fill material should be used as road base so that roads are above the level of flooding.

Interpretive Groups

Land capability classification: I

Woodland ordination symbol: 9A, based on loblolly pine as the indicator species

TaD—Tatum loam, 10 to 15 percent slopes

Setting

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Narrow and irregular

Size of areas: 5 to 100 acres

Composition

Tatum soil and similar soils: 85 percent

Dissimilar soils: 15 percent

Typical Profile

Surface layer:

0 to 8 inches—brown loam

Subsoil:

8 to 35 inches—red clay loam

Underlying material:

35 to 50 inches—multicolored loam saprolite in shades of red, brown, and yellow

Bedrock:

50 to 62 inches—weathered, highly fractured slate

62 inches—unweathered, moderately fractured slate

Soil Properties and Qualities

Depth class: Deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Moderate

Slope class: Strongly sloping

Surface runoff: Slow to very rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Very severe

Content of organic matter (surface layer): Low

Soil reaction: Very strongly acid or strongly acid throughout the profile, except where the surface layer has been limed

Parent material: Residuum weathered from fine grained metamorphic rock

Depth to bedrock: 40 to 60 inches to soft bedrock and more than 60 inches to hard bedrock

Minor Components

Dissimilar:

- Random areas of the eroded Tatum soils that have a surface layer of clay loam or silty clay loam
- Random areas of soils that have soft bedrock at a depth of less than 40 inches
- Rock outcrops on the upper side slopes

Similar:

- Random areas of soils that are similar to the Tatum soil but have a yellow subsoil

Land Use

Dominant Uses: Unmanaged woodland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability for pasture: Well suited

Suitability for hayland: Suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit equipment use in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Competition from undesirable plants

Management measures and considerations:

- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Planting the appropriate species, as recommended

by a forester, helps to maximize productivity and ensure planting success.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Slope, depth to bedrock, and restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Filter fields located on deeper included soils may perform better than those located on the Tatum soil.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Suited

Management concerns: Shrink-swell potential and slope

Management measures and considerations:

- Reinforcing foundations and basements or backfilling with coarse material helps to strengthen foundations and buildings and prevents damage caused by shrinking and swelling.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Poorly suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups

Land capability classification: IIIe

Woodland ordination symbol: 7A, based on loblolly pine as the indicator species

TaE—Tatum loam, 15 to 30 percent slopes

Setting

Landscape: Piedmont

Landform: Broad ridges

Landform position: Convex side slopes

Shape of areas: Long and narrow

Size of areas: 5 to 75 acres

Composition

Tatum soil and similar soils: 85 percent

Dissimilar soils: 15 percent

Typical Profile

Surface layer:

0 to 8 inches—brown loam

Subsoil:

8 to 35 inches—red clay loam

Underlying material:

35 to 50 inches—multicolored loam saprolite in shades of red, brown, and yellow

Bedrock:

50 to 62 inches—weathered, highly fractured slate

62 inches—unweathered, moderately fractured slate

Soil Properties and Qualities

Depth class: Deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Moderate

Slope class: Moderately steep

Surface runoff: Slow to very rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Very severe

Content of organic matter (surface layer): Low

Soil reaction: Very strongly acid or strongly acid throughout the profile, except where the surface layer has been limed

Parent material: Residuum weathered from fine grained metamorphic rock

Depth to bedrock: 40 to 60 inches to soft bedrock and more than 60 inches to hard bedrock

Minor Components

Dissimilar:

- Random areas of the eroded Tatum soils that have a

surface layer of clay loam and silty clay loam

- Soils that have soft bedrock at a depth of less than 40 inches
- Rock outcrops on the upper side slopes

Similar:

- Random areas of soils that are similar to the Tatum soil but have a yellow subsoil

Land Use

Dominant Uses: Unmanaged woodland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Poorly suited

Management concerns: Equipment use, erodibility, and soil fertility

Management measures and considerations:

- Soils in this map unit are difficult to manage for cultivated crops because the slope limits equipment use.
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability for pasture: Suited

Suitability for hayland: Poorly suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope limits equipment use in the steeper areas.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Erodibility, equipment use, and competition from undesirable plants

Management measures and considerations:

- Reforestation immediately after harvesting operations that uses minimal site preparation and recommended tree species helps to control erosion and prevent the siltation of streams.
- Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope limitation.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Dwellings

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Poorly suited

Management concerns: Slope and low strength

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 7R, based on loblolly pine as the indicator species

Ud—Udorthents, loamy

Setting

Landscape: Piedmont and Coastal Plain
Landform: Mostly uplands and terraces where the natural soil has been excavated and depressions that have been covered by earthy fill material
Landform position: Variable, commonly convex or concave side slopes
Shape of areas: Irregular
Size of areas: 5 to 100 acres

Composition

Udorthents and similar soils: 90 percent
 Dissimilar soils: 10 percent

Typical Profile

This map unit dominantly consists of cut and fill areas where soil material has been removed and placed on an adjacent site. It also includes quarries, landfills, borrow pits, and recreational areas, such as baseball fields. A typical pedon is not given due to the variable nature of the soil material.

Soil Properties and Qualities

Depth class: Deep or very deep
Drainage class: Well drained or moderately well drained
Permeability: Moderate to slow
Available water capacity: Very low to high
Depth to high water table: Variable, commonly more than 6.0 feet
Shrink-swell potential: Moderate
Slope class: Gently sloping or moderately sloping
Hazard of flooding: Variable, commonly none or rare
Surface runoff: Medium or rapid
Hazard of water erosion: Moderate or severe
Content of organic matter (surface layer): Low
Soil reaction: Extremely acid to moderately acid throughout the profile, except where the surface layer has been limed
Parent material: Loamy fill material
Depth to bedrock: Excavated areas—bedrock commonly exposed at the soil surface; fill areas—40 to more than 60 inches

Minor Components

Dissimilar:

- Random areas of Udorthents that have soft bedrock at a depth of less than 40 inches
- Somewhat poorly drained or poorly drained soils in slight depressions and at the head of drainageways
- Udorthents that are adjacent to streams subject to occasional or frequent flooding
- Udorthents that contain asphalt, wood, glass, and other waste materials

Similar:

- Soils that are similar to Udorthents but have clayey or sandy underlying material

Land Use

Dominant Uses: Urban land

Other Uses: Recreational development

Agricultural Development

Cropland

Suitability: Poorly suited

Management concerns: Highly disturbed soils, limited size of areas, and soil fertility

Management measures and considerations:

- This map unit is difficult to manage for crop production because of highly variable soil properties and the small size of areas.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Suited

Management concerns: Highly disturbed soils, limited size of areas, and soil fertility

Management measures and considerations:

- This map unit is difficult to manage for the production of pasture and hay crops because of highly variable soil properties and the small size of the areas.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- A rotational grazing system and a well-planned clipping and harvesting schedule help to keep the pasture in good condition and increase productivity.

Woodland

Suitability: Poorly suited

Management concerns: Highly disturbed soils and limited size of areas

Management measures and considerations:

- This map unit is difficult to manage for timber production because of highly variable soil properties and the small size of areas.

Urban Development**Septic tank absorption fields**

Suitability: Poorly suited

Management concerns: Highly disturbed soils and differential settling

Management measures and considerations:

- The highly variable soil properties and uneven settling are severe limitations affecting septic tank absorption fields.
- The local Health Department should be contacted for guidance in developing sanitary facilities.

Dwellings

Suitability: Poorly suited

Management concerns: Highly disturbed soils and differential settling

Management measures and considerations:

- The highly variable soil properties and uneven settling are severe limitations affecting dwellings. A site should be selected on better suited soils.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Highly disturbed soils and differential settling

Management measures and considerations:

- The highly variable soil properties and uneven settling are severe limitations affecting small commercial buildings. A site should be selected on better suited soils.

Local roads and streets

Suitability: Poorly suited

Management concerns: Highly disturbed soils and differential settling

Management measures and considerations:

- The highly variable soil properties and uneven settling are severe limitations affecting roads and streets. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: VIe

Woodland ordination symbol: None assigned

VaB—Vance sandy loam, 2 to 6 percent slopes**Setting**

Landscape: Piedmont

Landform: Knolls on broad ridges

Landform position: Convex side slopes

Shape of areas: Rounded or irregular

Size of areas: 5 to 100 acres

Composition

Vance soil and similar soils: 85 percent

Dissimilar soils: 15 percent

Typical Profile

Surface layer:

0 to 6 inches—brown sandy loam

Subsoil:

6 to 11 inches—brownish yellow clay

11 to 22 inches—strong brown clay

22 to 27 inches—strong brown clay that has red and reddish yellow mottles

27 to 36 inches—strong brown clay loam that has reddish yellow and red mottles

Underlying material:

36 to 50 inches—red sandy loam that has strong brown mottles

50 to 62 inches—multicolored clay loam saprolite in shades of red, brown, and yellow

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Moderate

Slope class: Gently sloping

Surface runoff: Medium or rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Moderate

Content of organic matter (surface layer): Low

Soil reaction: Moderately acid to very strongly acid in the A horizon, except where the surface layer has been limed; strongly acid or very strongly acid in the B and C horizons

Parent material: Residuum weathered from felsic crystalline rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- The moderately deep Saw soils that have hard bedrock at a depth of 20 to 40 inches
- Random areas of the moderately permeable Appling, Wedowee, and Cecil soils
- The moderately well drained Helena soils at the head of drainageways and in slight depressions
- Rock outcrops on the upper side slopes and on small knolls

Land Use

Dominant Uses: Cropland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Planting adapted species helps to ensure the production of high-quality forage and reduce the hazard of erosion.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- A rotational grazing system and a well-planned clipping and harvesting schedule help to keep the pasture in good condition and increase productivity.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Competition from undesirable plants

Management measures and considerations:

- Site preparation practices, such as chopping,

prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Suited

Management concerns: Shrink-swell potential

Management measures and considerations:

- Reinforcing foundations and buildings or backfilling with coarse material helps to strengthen foundations and buildings and prevents damage caused by shrinking and swelling.

Small commercial buildings

Suitability: Suited

Management concerns: Shrink-swell potential

Management measures and considerations:

- Reinforcing foundations or backfilling with coarse material helps to strengthen foundations and prevents damage caused by shrinking and swelling.

Local roads and streets

Suitability: Poorly suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.

Interpretive Groups

Land capability classification: IIIe

Woodland ordination symbol: 7A, based on loblolly pine as the indicator species

VaC—Vance sandy loam, 6 to 10 percent slopes

Setting

Landscape: Piedmont

Landform: Knolls on broad ridges

Landform position: Convex side slopes

Shape of areas: Rounded or irregular

Size of areas: 5 to 50 acres

Composition

Vance soil and similar soils: 85 percent

Dissimilar soils: 15 percent

Typical Profile

Surface layer:

0 to 6 inches—brown sandy loam

Subsoil:

6 to 11 inches—brownish yellow clay

11 to 22 inches—strong brown clay

22 to 27 inches—strong brown clay that has red and reddish yellow mottles

27 to 36 inches—strong brown clay loam that has reddish yellow and red mottles

Underlying material:

36 to 50 inches—red sandy loam that has strong brown mottles

50 to 62 inches—multicolored clay loam saprolite in shades of red, brown, and yellow

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Moderate

Slope class: Moderately sloping

Surface runoff: Medium or rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Severe

Content of organic matter (surface layer): Low

Soil reaction: Moderately acid to very strongly acid in the A horizon, except where the surface layer has been limed; strongly acid or very strongly acid in the B and C horizons

Parent material: Residuum weathered from felsic crystalline rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Shallow soils that have soft bedrock at a depth of less than 40 inches
- Random areas of the moderately permeable Wedowee soils
- The moderately well drained Helena soils at the head of drainageways and in slight depressions

- Rock outcrops on the upper side slopes and on small knolls

Land Use

Dominant Uses: Cropland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Resource management systems that include conservation tillage, crop residue management, stripcropping, and sod-based rotations help to reduce the hazard of erosion, control surface runoff, and maximize water infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit equipment use in the steeper areas during the harvest of hay crops.
- A rotational grazing system and a well-planned clipping and harvesting schedule help to keep the pasture in good condition and increase productivity.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Competition from undesirable plants

Management measures and considerations:

- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Suited

Management concerns: Shrink-swell potential

Management measures and considerations:

- Reinforcing foundations and buildings or backfilling with coarse material helps to strengthen foundations and buildings and prevents damage caused by shrinking and swelling.

Small commercial buildings

Suitability: Suited

Management concerns: Shrink-swell potential and slope

Management measures and considerations:

- Reinforcing foundations or backfilling with coarse material helps to strengthen foundations and prevents damage caused by shrinking and swelling.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Poorly suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.

Interpretive Groups

Land capability classification: IVe

Woodland ordination symbol: 7A, based on loblolly pine as the indicator species

VgB—Varina gravelly sandy loam, 2 to 6 percent slopes

Setting

Landscape: Coastal Plain

Landform: Broad ridges

Landform position: Convex side slopes

Shape of areas: Oblong or irregular

Size of areas: 5 to 250 acres

Composition

Varina soil and similar soils: 90 percent

Dissimilar soils: 10 percent

Typical Profile

Surface layer:

0 to 9 inches—dark brown gravelly sandy loam

Subsoil:

9 to 16 inches—yellowish brown sandy clay loam

16 to 44 inches—strong brown clay that has yellowish brown and dark red mottles

44 to 62 inches—strong brown clay that has dark red and brownish yellow mottles

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate in the upper part of the B

horizon and slow in the lower part of the B horizon

Available water capacity: Moderate

High water table: At a depth of 4.0 to 5.0 feet from December through April

Shrink-swell potential: Low

Slope class: Gently sloping

Surface runoff: Slow

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Moderate

Content of organic matter (surface layer): Low

Soil reaction: Strongly acid or very strongly acid

throughout the profile, except where the surface layer has been limed

Parent material: Marine sediments over residuum

weathered from felsic crystalline rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Random areas of Varina soils that have a surface layer of loamy sand or sand
- The moderately well drained Duplin soils in slight depressions
- Random areas of soils that have less than 5 percent plinthite in the subsoil

Similar:

- Random areas of soils that are similar to the Varina soil but have a red subsoil

Land Use

Dominant Uses: Cropland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Planting adapted species helps to ensure the production of high-quality forage and reduce the hazard of erosion.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns:

- There are no significant limitations affecting woodland management.
- Management measures and considerations:*
 - Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.

- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability for dwellings without basements: Well suited

Suitability for dwellings with basements: Suited

Management concerns: Wetness

Management measures and considerations:

- Constructing dwellings on raised, well compacted fill material helps to reduce the risk of damage caused by wetness.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.

Interpretive Groups

Land capability classification: IIe

Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

VnB—Varina loamy sand, 2 to 6 percent slopes

Setting

Landscape: Coastal Plain

Landform: Broad ridges

Landform position: Convex side slopes

Shape of areas: Oblong or irregular

Size of areas: 5 to 200 acres

Composition

Varina soil and similar soils: 75 percent

Dissimilar soils: 25 percent

Typical Profile

Surface layer:

0 to 10 inches—brown loamy sand

Subsurface layer:

10 to 14 inches—light yellowish brown sandy loam

Subsoil:

14 to 21 inches—yellowish brown sandy clay loam

21 to 30 inches—yellowish brown clay that has light yellowish brown, strong brown, and red mottles

30 to 42 inches—yellowish brown sandy clay that has very pale brown and red mottles

42 to 48 inches—brownish yellow sandy clay that has white and dark yellowish brown mottles

48 to 80 inches—yellow, white, and dark yellowish brown sandy clay

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate in the upper part of the B horizon and slow in the lower part of the B horizon

Available water capacity: Moderate

High water table: At a depth of 4.0 to 5.0 feet from December through April

Shrink-swell potential: Low

Slope class: Gently sloping

Surface runoff: Slow

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: None or slight

Content of organic matter (surface layer): Low

Soil reaction: Strongly acid or very strongly acid throughout the profile, except where the surface layer has been limed

Parent material: Marine sediments over residuum weathered from felsic crystalline rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Random areas of Varina soils that have a gravelly surface layer
- The moderately well drained Duplin soils in slight depressions
- Random areas of soils that have less than 5 percent plinthite in the subsoil

Similar:

- Random areas of soils that are similar to the Varina soil but have a red subsoil

Land Use

Dominant Uses: Cropland (fig. 4)

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Well suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Using equipment with low-pressure tires helps to prevent slippage and rutting caused by the high content of sand.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Planting adapted species helps to ensure the production of high-quality forage and reduce the hazard of erosion.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns:

- There are no significant limitations affecting woodland management.
- Management measures and considerations:*
- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.



Figure 4.—Tobacco in an area of Varina loamy sand, 2 to 6 percent slopes.

- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability for dwellings without basements: Well suited

Suitability for dwellings with basements: Suited

Management concerns: Wetness

Management measures and considerations:

- Constructing dwellings on raised, well compacted fill material helps to reduce the risk of damage caused by wetness.

Small commercial buildings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting small commercial buildings.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.

Interpretive Groups

Land capability classification: IIe

Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

VnC—Varina loamy sand, 6 to 10 percent slopes

Setting

Landscape: Coastal Plain

Landform: Broad ridges

Landform position: Convex side slopes

Shape of areas: Oblong or irregular

Size of areas: 5 to 50 acres

Composition

Varina soil and similar soils: 85 percent

Dissimilar soils: 15 percent

Typical Profile

Surface layer:

0 to 10 inches—brown loamy sand

Subsurface layer:

10 to 14 inches—light yellowish brown sandy loam

Subsoil:

14 to 21 inches—yellowish brown sandy clay loam

21 to 30 inches—yellowish brown clay that has light yellowish brown, strong brown, and red mottles

30 to 42 inches—yellowish brown sandy clay that has very pale brown and red mottles

42 to 48 inches—brownish yellow sandy clay that has white and dark yellowish brown mottles

48 to 80 inches—yellow, white, and dark yellowish brown sandy clay

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate in the upper part of the B horizon and slow in the lower part of the B horizon

Available water capacity: Moderate

High water table: At a depth of 4.0 to 5.0 feet from December through April

Shrink-swell potential: Low

Slope class: Moderately sloping

Surface runoff: Slow

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Moderate

Content of organic matter (surface layer): Low

Soil reaction: Strongly acid or very strongly acid

throughout the profile, except where the surface layer has been limed

Parent material: Marine sediments over residuum weathered from felsic crystalline rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Random areas of Varina soils that have a gravelly surface layer
- The moderately well drained Duplin soils in slight depressions
- Random areas of soils that have less than 5 percent plinthite in the subsoil

Similar:

- Random areas of soils that are similar to the Varina soil but have a red subsoil

Land Use

Dominant Uses: Cropland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Using equipment with low-pressure tires helps to prevent slippage and rutting caused by the high content of sand.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Planting adapted species helps to ensure the production of high-quality forage and reduce the hazard of erosion.
- Using equipment with low-pressure tires helps to prevent slippage and rutting caused by the high content of sand.

- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns:

- There are no significant limitations affecting woodland management.

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Suited

Management concerns: Wetness and slope

Management measures and considerations:

- Constructing dwellings on raised, well compacted fill material helps to reduce the risk of damage caused by wetness.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength and slope

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Interpretive Groups

Land capability classification: IIIe

Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

W—Water

Setting

Landscape: Piedmont and Coastal Plain

Landform: Flood plains, low terraces, and uplands

Shape of areas: Irregular

Size of areas: 3 to more than 100 acres

Description

This map unit consists of areas of natural or manmade bodies of water, mostly lakes, ponds, rivers, or streams. Water from these areas is generally used for human or livestock consumption and irrigation. Areas identified on the soils maps with a special symbol are typically less than 0.5 acre to 3.0 acres in size.

Interpretive Groups

Land capability classification: None assigned

Woodland ordination symbol: None assigned

WaB—Wake-Saw-Wedowee complex, 2 to 8 percent slopes, rocky

Setting

Landscape: Piedmont

Landform: Wake—narrow ridges, knolls, and hill slopes; Saw—broad ridges and hill slopes; Wedowee—narrow ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 400 acres

Composition

Wake soil and similar soils: 35 percent

Saw soil and similar soils: 30 percent

Wedowee soil and similar soils: 20 percent

Dissimilar soils: 15 percent

Typical Profile

Wake

Surface layer:

0 to 7 inches—yellowish brown gravelly loamy coarse sand

Underlying material:

7 to 11 inches—reddish yellow gravelly loamy sand

Bedrock:

11 to 16 inches—weathered, moderately fractured porphyritic granite

16 inches—unweathered, slightly fractured porphyritic granite

Saw

Surface layer:

0 to 10 inches—brown sandy loam

Subsurface layer:

10 to 14 inches—light yellowish brown sandy loam

Subsoil:

14 to 21 inches—reddish yellow clay loam that has strong brown mottles

21 to 25 inches—strong brown clay that has yellowish red mottles

25 to 30 inches—yellowish red clay loam that has strong brown and brownish yellow mottles

Underlying material:

30 to 34 inches—multicolored sandy loam saprolite in shades of red, brown, yellow, and white

Bedrock:

34 inches—unweathered, slightly fractured porphyritic granite

Wedowee

Surface layer:

0 to 5 inches—yellowish brown sandy loam

Subsoil:

5 to 10 inches—yellow sandy clay loam

10 to 18 inches—brownish yellow clay loam that has red mottles

18 to 23 inches—brownish yellow sandy clay that has red mottles

23 to 35 inches—brownish yellow clay loam that has red and yellowish red mottles

Underlying material:

35 to 40 inches—multicolored sandy clay loam saprolite in shades of yellow, red, brown, and white

40 to 62 inches—multicolored sandy loam saprolite in shades of yellow, red, brown, and white

Soil Properties and Qualities

Depth class: Wake—shallow; Saw—moderately deep; Wedowee—very deep

Drainage class: Wake—excessively drained; Saw and Wedowee—well drained

Permeability: Wake—rapid; Saw and Wedowee—moderate

Available water capacity: Wake—very low; Saw and Wedowee—moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Gently sloping

Surface runoff: Wake and Wedowee—medium or rapid; Saw—medium to very rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Moderate

Extent of rock outcrops: About 2 percent rock outcrops that average about 5 to 10 feet in length and width and 200 to 500 feet apart

Content of organic matter (surface layer): Wake and Saw—low; Wedowee—low to moderate

Soil reaction: Wake and Saw—very strongly acid to moderately acid throughout the profile, except where the surface layer has been limed; Wedowee—extremely acid to strongly acid throughout the profile, except where the surface layer has been limed

Parent material: Wake and Saw—residuum weathered from coarse grained felsic crystalline igneous rock; Wedowee—residuum weathered from felsic crystalline rock

Depth to bedrock: Wake—8 to 20 inches to hard bedrock; Saw—20 to 40 inches to hard bedrock; Wedowee—more than 60 inches

Minor Components

Dissimilar:

- Random areas of soils that have a loamy subsoil
- Random areas of soils that have bedrock at a depth of 40 to 60 inches

Similar:

- Wake, Saw, and Wedowee soils that have a surface layer of loam

Land Use

Dominant Uses: Cropland

Other Uses: Woodland, pasture, and hayland

Agricultural Development

Cropland

Suitability: Wake—poorly suited; Saw and Wedowee—well suited

Management concerns: Wake—equipment use, droughtiness, nutrient leaching, and rooting depth; Saw—equipment use, rooting depth, and soil fertility; Wedowee—equipment use and soil fertility

Management measures and considerations:

- Because of the areas of rock outcrops, this map unit is difficult to manage for cropland.
- Because of the shallow rooting depth, the Wake soil is difficult to manage for the economical production of crops.

Pasture and hayland

Suitability: Wake—suited; Saw and Wedowee—well suited

Management concerns: Wake—equipment use, rooting depth, droughtiness, and nutrient leaching; Saw—equipment use, rooting depth, and soil fertility; Wedowee—equipment use and soil fertility

Management measures and considerations:

- Because of the areas of rock outcrops, this map unit is difficult to manage for pasture and hayland.
- Because of the shallow rooting depth, the Wake soil is difficult to manage for the economical production of pasture and hay crops.

Woodland

Suitability: Wake—suited; Saw and Wedowee—well suited

Productivity class: Moderately high for loblolly pine

Management measures and considerations: Wake—seedling survival; Saw—windthrow hazard and competition from undesirable plants; Wedowee—competition from undesirable plants

Management measures and considerations:

- Planting seedlings during wet, cool periods helps to increase plant survival rates.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Wake and Saw—poorly suited; Wedowee—suited

Management concerns: Wake and Saw—depth to bedrock; Wedowee—restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Filter fields located on deeper included soils may perform better than those located on the Wake, Saw, and Wedowee soils.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soils are not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability for dwellings without basements: Wake—poorly suited; Saw—suited; Wedowee—well suited

Suitability for dwellings with basements: Wake and Saw—poorly suited; Wedowee—well suited

Management concerns: Wake and Saw—depth to bedrock; Wedowee—no significant limitations

Management measures and considerations:

- Special earthmoving equipment or the drilling and blasting of rock are needed.

Small commercial buildings

Suitability: Wake—poorly suited; Saw and Wedowee—suited

Management concerns: Wake—depth to bedrock; Saw—depth to bedrock and slope; Wedowee—slope

Management measures and considerations:

- Special earthmoving equipment or the drilling and blasting of rock are needed.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Wake—poorly suited; Saw and Wedowee—suited

Management concerns: Wake—depth to bedrock; Saw—depth to bedrock and low strength; Wedowee—low strength

Management measures and considerations:

- Blasting or special grading equipment may be needed to construct roads on the Wake and Saw soils.
- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups

Land capability classification: Wake—IVs; Saw and Wedowee—IIe

Woodland ordination symbol: Based on loblolly pine as the indicator species, 6D in areas of the Wake soil, 7D in areas of the Saw soil, and 8A in areas of the Wedowee soil

WbD—Wake-Wateree-Wedowee complex, 8 to 15 percent slopes, rocky

Setting

Landscape: Piedmont

Landform: Wake—narrow ridges, knolls, and side slopes; Wateree and Wedowee—narrow ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 400 acres

Composition

Wake soil and similar soils: 35 percent

Wateree soil and similar soils: 30 percent

Wedowee soil and similar soils: 25 percent

Dissimilar soils: 10 percent

Typical Profile

Wake

Surface layer:

0 to 7 inches—yellowish brown gravelly loamy coarse sand

Underlying material:

7 to 11 inches—reddish yellow gravelly loamy sand

Bedrock:

11 to 16 inches—weathered, moderately fractured porphyritic granite

16 inches—unweathered, slightly fractured porphyritic granite

Wateree

Surface layer:

0 to 7 inches—olive brown sandy loam

Subsoil:

7 to 18 inches—dark yellowish brown sandy loam

18 to 28 inches—yellowish brown sandy loam

Underlying material:

28 to 35 inches—multicolored sandy loam saprolite in shades of red, brown, and yellow

Bedrock:

35 to 50 inches—weathered, highly fractured porphyritic granite

50 to 72 inches—weathered, moderately fractured porphyritic granite

Wedowee

Surface layer:

0 to 5 inches—yellowish brown sandy loam

Subsoil:

5 to 10 inches—yellow sandy clay loam

10 to 18 inches—brownish yellow clay loam that has red mottles

18 to 23 inches—brownish yellow sandy clay that has red mottles

23 to 35 inches—brownish yellow clay loam that has red and yellowish red mottles

Underlying material:

35 to 40 inches—multicolored sandy clay loam saprolite in shades of yellow, red, brown, and white

40 to 62 inches—multicolored sandy loam saprolite in shades of yellow, red, brown, and white

Soil Properties and Qualities

Depth class: Wake—shallow; Wateree—moderately deep; Wedowee—very deep

Drainage class: Wake—excessively drained; Wateree and Wedowee—well drained

Permeability: Wake—rapid; Wateree—moderately rapid; Wedowee—moderate

Available water capacity: Wake—very low; Wateree and Wedowee—moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Strongly sloping

Surface runoff: Wake and Wedowee—medium or rapid; Wateree—medium

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Severe

Extent of rock outcrops: About 2 percent rock outcrops that average about 5 to 10 feet in length and width and 300 to 500 feet apart

Content of organic matter (surface layer): Wake and Wateree—low; Wedowee—low to moderate

Soil reaction: Wake—very strongly acid to moderately acid throughout the profile, except where the surface layer has been limed; Wateree—very strongly acid to moderately acid in the A and B horizons and extremely acid to moderately acid in the C horizon; Wedowee—extremely acid to strongly acid throughout the profile, except where the surface layer has been limed

Parent material: Wake—residuum weathered from coarse grained felsic crystalline igneous rock; Wateree—residuum weathered from felsic crystalline rock, commonly granite and gneiss;

Wedowee—residuum weathered from felsic crystalline rock

Depth to bedrock: Wake—8 to 20 inches to hard bedrock; Wateree—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Wedowee—more than 60 inches

Minor Components

Dissimilar:

- Random areas of soils that have a loamy subsoil
- Random areas of soils that have bedrock at a depth of 40 to 60 inches
- Random areas of Wilkes soils which have more clay in the subsoil than the Wake soil and have reaction that ranges to slightly alkaline

Similar:

- Wake, Wateree, and Wedowee soils that have a surface layer of loam

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland

Agricultural Development

Cropland

Suitability: Poorly suited

Management concerns: Wake—erodibility, equipment use, droughtiness, nutrient leaching, and rooting depth; Wateree—erodibility, equipment use, rooting depth, and soil fertility; Wedowee—erodibility and soil fertility

Management measures and considerations:

- Because of the areas of rock outcrops, this map unit is difficult to manage for cropland.
- Because of the shallow rooting depth, the Wake soil is difficult to manage for the economical production of crops.
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Leaving crop residue on the soil surface helps to conserve soil moisture.
- Irrigation water should be used in frequent and light applications to prevent the leaching of plant nutrients and pesticides below the plant roots.
- Incorporating plant residue into the soil helps to improve the water-holding capacity and using shallow-rooted crops helps to overcome the moderately deep rooting depth of the Wateree soil.

- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability for pasture: Wake—suited; Wateree and Wedowee—well suited

Suitability for hayland: Wake—poorly suited; Wateree and Wedowee—suited

Management concerns: Wake—erodibility, equipment use, rooting depth, droughtiness, and nutrient leaching; Wateree—erodibility, equipment use, rooting depth, and soil fertility; Wedowee—erodibility, equipment use, and soil fertility

Management measures and considerations:

- Because of the areas of rock outcrops, this map unit is difficult to manage for pasture and hayland.
- Because of the shallow rooting depth, the Wake soil is difficult to manage for the economical production of pasture and hay crops.

Woodland

Suitability: Wake—suited; Wateree and Wedowee—well suited

Productivity class: Moderately high for loblolly pine

Management measures and considerations: Wake—seedling survival; Wateree—windthrow hazard; Wedowee—competition from undesirable plants

Management measures and considerations:

- Planting seedlings during wet, cool periods helps to increase plant survival rates.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Wake and Wateree—poorly suited; Wedowee—suited

Management concerns: Wake and Wateree—depth to bedrock; Wedowee—restricted permeability and slope

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Filter fields located on deeper included soils may perform better than those located on the Wake, Wateree, and Wedowee soils.

- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soils are not wet helps to prevent smearing and sealing of trench walls.
- Installing distribution lines on the contour helps to improve performance of septic tank absorption fields.

Dwellings

Suitability: Wake—poorly suited; Wateree and Wedowee—suited

Management concerns: Wake—depth to bedrock; Wateree—depth to bedrock and slope; Wedowee—slope

Management measures and considerations:

- Special earthmoving equipment or the drilling and blasting of rock are needed.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Wake—slope and depth to bedrock; Wateree and Wedowee—slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Special earthmoving equipment or the drilling and blasting of rock are needed.

Local roads and streets

Suitability: Wake—poorly suited; Wateree and Wedowee—suited

Management concerns: Wake—depth to bedrock; Wateree—slope; Wedowee—low strength and slope

Management measures and considerations:

- Blasting or special grading equipment may be needed to construct roads on the Wake and Wateree soils.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.
- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups

Land capability classification: Wake—VIs; Wateree—VIe; Wedowee—IVe

Woodland ordination symbol: Based on loblolly pine as the indicator species, 6D in areas of the Wake soil,

7A in areas of the Wateree soil, and 8A in areas of the Wedowee soil

WcE—Wake-Wateree complex, 15 to 30 percent slopes, very rocky

Setting

Landscape: Piedmont

Landform: Wake—narrow ridges, knolls, and hill slopes; Wateree—narrow ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 400 acres

Composition

Wake soil and similar soils: 50 percent

Wateree soil and similar soils: 35 percent

Dissimilar soils: 15 percent

Typical Profile

Wake

Surface layer:

0 to 7 inches—yellowish brown gravelly loamy coarse sand

Underlying material:

7 to 11 inches—reddish yellow gravelly loamy sand

Bedrock:

11 to 16 inches—weathered, moderately fractured porphyritic granite

16 inches—unweathered, slightly fractured porphyritic granite

Wateree

Surface layer:

0 to 7 inches—olive brown sandy loam

Subsoil:

7 to 18 inches—dark yellowish brown sandy loam

18 to 28 inches—yellowish brown sandy loam

Underlying material:

28 to 35 inches—multicolored sandy loam saprolite in shades of red, brown, and yellow

Bedrock:

35 to 50 inches—weathered, highly fractured porphyritic granite

50 to 72 inches—weathered, moderately fractured porphyritic granite

Soil Properties and Qualities

Depth class: Wake—shallow; Wateree—moderately deep

Drainage class: Wake—excessively drained;
Wateree—well drained

Permeability: Wake—rapid; Wateree—moderately rapid

Available water capacity: Wake—very low; Wateree—moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Moderately steep

Surface runoff: Wake—medium or rapid; Wateree—medium

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Very severe

Extent of rock outcrops: About 8 percent rock outcrops that average about 5 to 10 feet in length and width and 150 to 300 feet apart

Content of organic matter (surface layer): Low

Soil reaction: Wake—very strongly acid to moderately acid throughout the profile, except where the surface layer has been limed; Wateree—very strongly acid to moderately acid in the A and B horizons and extremely acid to moderately acid in the C horizon

Parent material: Wake—residuum weathered from coarse grained felsic crystalline rock; Wateree—residuum weathered from felsic crystalline rock, commonly granite and gneiss

Depth to bedrock: Wake—8 to 20 inches to hard bedrock; Wateree—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock

Minor Components

Dissimilar:

- Random areas of soils that have a loamy subsoil
- Random areas of soils that have bedrock at a depth of more than 40 inches
- Soils that have cobbles in the subsoil
- Random areas of Wilkes soils which have more clay in the subsoil than the Wake soil and have reaction that ranges to moderately alkaline

Similar:

- Random areas of Wake and Wateree soils that have a surface layer of loam

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Wake—poorly suited; Wateree—unsuited

Management concerns: Wake—erodibility, equipment use, droughtiness, nutrient leaching, and rooting depth; Wateree—erodibility, equipment use, rooting depth, and soil fertility

Management measures and considerations:

- This map unit has severe limitations affecting crop production. A site should be selected on better suited soils.

Pasture and hayland

Suitability for pasture: Wake—poorly suited; Wateree—suited

Suitability for hayland: Wake—unsuited; Wateree—poorly suited

Management concerns: Wake—erodibility, equipment use, rooting depth, droughtiness, and nutrient leaching; Wateree—erodibility, equipment use, rooting depth, and soil fertility

Management measures and considerations:

- This map unit has severe limitations affecting the production of pasture and hay crops. A site should be selected on better suited soils.

Woodland

Suitability: Suited

Productivity class: Moderately high for loblolly pine

Management measures and considerations: Wake—erodibility, equipment use, and seedling survival; Wateree—erodibility, equipment use, seedling survival, and windthrow hazard

Management measures and considerations:

- Establishing permanent plant cover on roads and landings after logging operations helps to reduce the hazard of erosion and prevent the siltation of streams.
- Constructing roads, fire lanes, and skid trails on the contour and, where possible, around rock outcrops helps to overcome the slope limitation.
- Planting seedlings during wet, cool periods helps to increase plant survival rates.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Depth to bedrock and slope

Management measures and considerations:

- The depth to bedrock and the slope are severe limitations affecting septic tank absorption fields.
- The local Health Department should be contacted for guidance in developing sanitary facilities.

Dwellings

Suitability: Poorly suited

Management concerns: Wake—depth to bedrock and slope; Wateree—slope

Management measures and considerations:

- The depth to bedrock and the slope are severe limitations affecting dwellings. A site should be selected on better suited soils.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Wake—slope and depth to bedrock; Wateree—slope

Management measures and considerations:

- The depth to bedrock and the slope are severe limitations affecting dwellings. A site should be selected on better suited soils.

Local roads and streets

Suitability: Poorly suited

Management concerns: Wake—depth to bedrock and slope; Wateree—slope

Management measures and considerations:

- The slope and the depth to bedrock are severe limitations affecting roads and streets. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: Wake—VIs; Wateree—VIIe

Woodland ordination symbol: Based on loblolly pine as the indicator species, 6D in areas of the Wake soil and 7R in areas of the Wateree soil

WdE—Wateree-Rion-Wedowee complex, 15 to 30 percent slopes

Setting

Landscape: Piedmont

Landform: Narrow ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 100 acres

Composition

Wateree soil and similar soils: 35 percent

Rion soil and similar soils: 30 percent

Wedowee soil and similar soils: 20 percent

Dissimilar soils: 15 percent

Typical Profile

Wateree

Surface layer:

0 to 7 inches—olive brown sandy loam

Subsoil:

7 to 18 inches—dark yellowish brown sandy loam

18 to 28 inches—yellowish brown sandy loam

Underlying material:

28 to 35 inches—multicolored sandy loam saprolite in shades of red, brown, and yellow

Bedrock:

35 to 50 inches—weathered, highly fractured porphyritic granite

50 to 72 inches—weathered, moderately fractured porphyritic granite

Rion

Surface layer:

0 to 5 inches—very dark grayish brown sandy loam

5 to 8 inches—brown sandy loam

Subsurface layer:

8 to 16 inches—brownish yellow sandy loam

Subsoil:

16 to 26 inches—yellowish brown clay loam

26 to 34 inches—yellowish brown sandy clay loam

Underlying material:

34 to 65 inches—multicolored sandy clay loam saprolite in shades of brown, yellow, and white

Wedowee

Surface layer:

0 to 5 inches—yellowish brown sandy loam

Subsoil:

5 to 10 inches—yellow sandy clay loam

10 to 18 inches—brownish yellow clay loam that has red mottles

18 to 23 inches—brownish yellow sandy clay that has red mottles

23 to 35 inches—brownish yellow clay loam that has red and yellowish red mottles

Underlying material:

35 to 40 inches—multicolored sandy clay loam saprolite in shades of yellow, red, brown, and white

40 to 62 inches—multicolored sandy loam saprolite in shades of yellow, red, brown, and white

Soil Properties and Qualities

Depth class: Wateree—moderately deep; Rion and Wedowee—very deep
Drainage class: Well drained
Permeability: Wateree—moderately rapid; Rion and Wedowee—moderate
Available water capacity: Moderate
Depth to high water table: More than 6.0 feet
Shrink-swell potential: Low
Slope class: Moderately steep
Surface runoff: Wateree—medium; Rion and Wedowee—medium or rapid
Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed
Hazard of water erosion: Very severe
Content of organic matter (surface layer): Wateree and Rion—low; Wedowee—low to moderate
Soil reaction: Wateree—very strongly acid to moderately acid in the A and B horizons and extremely acid to moderately acid in the C horizon; Rion—very strongly acid to slightly acid throughout the profile, except where the surface layer has been limed; Wedowee—extremely acid to strongly acid throughout the profile, except where the surface layer has been limed
Parent material: Wateree—residuum weathered from felsic crystalline rock, commonly granite and gneiss; Rion and Wedowee—residuum weathered from felsic crystalline rock
Depth to bedrock: Wateree—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Rion and Wedowee—more than 60 inches

Minor Components

Dissimilar:

- Rock outcrops on the upper side slopes and on small knolls
- Soils that have hard bedrock at a depth of less than 20 inches
- Soils that have cobbles or larger fragments on the surface

Similar:

- Random areas of Wateree, Rion, and Wedowee soils that have a surface layer of loam

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Wateree—unsuited; Rion and Wedowee—poorly suited

Management concerns: Wateree—erodibility, equipment use, rooting depth, and soil fertility; Rion and Wedowee—erodibility and soil fertility

Management measures and considerations:

- This map unit has severe limitations affecting crop production. A site should be selected on better suited soils.

Pasture and hayland

Suitability for pasture: Suited

Suitability for hayland: Poorly suited

Management concerns: Wateree—erodibility, equipment use, rooting depth, and soil fertility; Rion and Wedowee—erodibility, equipment use, and soil fertility

Management measures and considerations:

- This map unit has severe limitations affecting the production of pasture and hay crops. A site should be selected on better suited soils.

Woodland

Suitability: Wateree—suited; Rion and Wedowee—well suited

Productivity class: Moderately high for loblolly pine

Management measures and considerations:

Wateree—erodibility, equipment use, seedling survival, and windthrow hazard; Rion—erodibility and equipment use; Wedowee—erodibility, equipment use, and competition from undesirable plants

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.
- Establishing permanent plant cover on roads and landings after logging operations helps to reduce the hazard of erosion and prevent the siltation of streams.
- Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope limitation.
- Maintaining surface litter helps to increase water infiltration and reduces seedling mortality.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Wateree—depth to bedrock and slope; Rion and Wedowee—slope

Management measures and considerations:

- The slope is a severe limitation affecting septic tank absorption fields.
- The local Health Department should be contacted for guidance in developing sanitary facilities.

Dwellings

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- The slope is a severe limitation affecting dwellings. A site should be selected on better suited soils.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- The slope is a severe limitation affecting small commercial buildings. A site should be selected on better suited soils.

Local roads and streets

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- The slope is a severe limitation affecting roads and streets. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: Wateree—VIIe; Rion and Wedowee—VIe

Woodland ordination symbol: Based on loblolly pine as the indicator species, 7R in areas of the Wateree soil and 8R in areas of the Rion and Wedowee soils

WeB—Wedowee sandy loam, 2 to 6 percent slopes

Setting

Landscape: Piedmont

Landform: Narrow ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 300 acres

Composition

Wedowee soil and similar soils: 90 percent

Dissimilar soils: 10 percent

Typical Profile

Surface layer:

0 to 5 inches—yellowish brown sandy loam

Subsoil:

5 to 10 inches—yellow sandy clay loam

10 to 18 inches—brownish yellow clay loam that has red mottles

18 to 23 inches—brownish yellow sandy clay that has red mottles

23 to 35 inches—brownish yellow clay loam that has red and yellowish red mottles

Underlying material:

35 to 40 inches—multicolored sandy clay loam saprolite in shades of yellow, red, brown, and white

40 to 62 inches—multicolored sandy loam saprolite in shades of yellow, red, brown, and white

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Gently sloping

Surface runoff: Medium or rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Moderate

Content of organic matter (surface layer): Low to moderate

Soil reaction: Extremely acid to strongly acid throughout the profile, except where the surface layer has been limed

Parent material: Residuum weathered from felsic crystalline rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Random areas of shallow soils that have soft bedrock at a depth of less than 60 inches
- Areas of the eroded Wedowee soils that have a surface layer of clay loam or sandy clay loam
- The moderately well drained, slowly permeable Helena soils in slight depressions and at the head of drainageways
- The slowly permeable Vance soils on knolls

- Rock outcrops on the upper side slopes and on small knolls

Similar:

- Random areas of Pacolet soils that have a red subsoil

Land Use

Dominant Uses: Cropland, pasture, and hayland

Other Uses: Woodland

Agricultural Development

Cropland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming (fig. 5), and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability: Well suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Competition from undesirable plants

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting dwellings.

Small commercial buildings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting small commercial buildings.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups

Land capability classification: IIe

Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

WeC—Wedowee sandy loam, 6 to 10 percent slopes

Setting

Landscape: Piedmont

Landform: Narrow ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 200 acres

Composition

Wedowee soil and similar soils: 85 percent

Dissimilar soils: 15 percent



Figure 5.—No-till crops in an area of Wedowee sandy loam, 2 to 6 percent slopes.

Typical Profile

Surface layer:

0 to 5 inches—yellowish brown sandy loam

Subsoil:

5 to 10 inches—yellowish sandy clay loam

10 to 18 inches—brownish yellow clay loam that has red mottles

18 to 23 inches—brownish yellow sandy clay that has red mottles

23 to 35 inches—brownish yellow clay loam that has red and yellowish red mottles

Underlying material:

35 to 40 inches—multicolored sandy clay loam saprolite in shades of yellow, red, brown, and white

40 to 62 inches—multicolored sandy loam saprolite in shades of yellow, red, brown, and white

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet
Shrink-swell potential: Low
Slope class: Moderately sloping
Surface runoff: Medium or rapid
Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed
Hazard of water erosion: Severe
Content of organic matter (surface layer): Low to moderate
Soil reaction: Extremely acid to strongly acid throughout the profile, except where the surface layer has been limed
Parent material: Residuum weathered from felsic crystalline rock
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- Random areas of shallow soils that have soft bedrock at a depth of less than 60 inches
- The moderately well drained, slowly permeable Helena soils in slight depressions and at the head of drainageways
- Areas of the eroded Wedowee soils that have a surface layer of clay loam or sandy clay loam
- Random areas of soils that have a coarse subsoil

Similar:

- Random areas of Pacolet soils that have a red subsoil

Land Use

Dominant Uses: Cropland, pasture, and hayland

Other Uses: Woodland

Agricultural Development

Cropland

Suitability: Suited

Management concerns: Erodibility and soil fertility

Management measures and considerations:

- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability for pasture: Well suited

Suitability for hayland: Suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit equipment use in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Competition from undesirable plants

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets*Suitability:* Suited*Management concerns:* Low strength*Management measures and considerations:*

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups*Land capability classification:* IIIe*Woodland ordination symbol:* 8A, based on loblolly pine as the indicator species**WeD—Wedowee sandy loam, 10 to 15 percent slopes****Setting***Landscape:* Piedmont*Landform:* Narrow ridges and hill slopes*Landform position:* Convex side slopes*Shape of areas:* Irregular*Size of areas:* 5 to 100 acres**Composition**

Wedowee soil and similar soils: 85 percent

Dissimilar soils: 15 percent

Typical Profile*Surface layer:*

0 to 5 inches—yellowish brown sandy loam

Subsoil:

5 to 10 inches—yellow sandy clay loam

10 to 18 inches—brownish yellow clay loam that has red mottles

18 to 23 inches—brownish yellow sandy clay that has red mottles

23 to 35 inches—brownish yellow clay loam that has red and yellowish red mottles

Underlying material:

35 to 40 inches—multicolored sandy clay loam saprolite in shades of yellow, red, brown, and white

40 to 62 inches—multicolored sandy loam saprolite in shades of yellow, red, brown, and white

Soil Properties and Qualities*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderate*Available water capacity:* Moderate*Depth to high water table:* More than 6.0 feet*Shrink-swell potential:* Low*Slope class:* Strongly sloping*Surface runoff:* Medium or rapid*Extent of erosion:* Slight, less than 25 percent of the original surface layer has been removed*Hazard of water erosion:* Very severe*Content of organic matter (surface layer):* Low to moderate*Soil reaction:* Extremely acid to strongly acid throughout the profile, except where the surface layer has been limed*Parent material:* Residuum weathered from felsic crystalline rock*Depth to bedrock:* More than 60 inches**Minor Components***Dissimilar:*

- Random areas of shallow soils that have soft bedrock at a depth of less than 60 inches
- Areas of the eroded Wedowee soils that have a surface layer of clay loam or sandy clay loam
- Random areas of soils that have a coarse subsoil
- Rock outcrops on the upper side slopes and on small knolls

Similar:

- Random areas of Pacolet soils that have a red subsoil

Land Use**Dominant Uses:** Woodland**Other Uses:** Pasture and hayland**Agricultural Development****Cropland***Suitability:* Poorly suited*Management concerns:* Erodibility and soil fertility*Management measures and considerations:*

- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and helps to maximize productivity.

Pasture and hayland

Suitability for pasture: Well suited

Suitability for hayland: Suited

Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit equipment use in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns: Competition from undesirable plants

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development**Septic tank absorption fields**

Suitability: Suited

Management concerns: Restricted permeability and slope

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.
- Installing distribution lines on the contour helps to improve performance of septic tank absorption fields.

Dwellings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength and slope

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Groups

Land capability classification: I\Ve

Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

WuC—Wedowee-Urban land-Udorthents complex, 2 to 10 percent slopes**Setting**

Landscape: Piedmont

Landform: Narrow ridges and hill slopes

Landform position: Convex side slopes

Shape of areas: Irregular

Size of areas: 5 to 500 acres

Composition

Wedowee soil and similar soils: 40 percent

Urban land: 30 percent

Udorthents: 15 percent

Dissimilar soils: 15 percent

Typical Profile**Wedowee**

Surface layer:

0 to 5 inches—yellowish brown sandy loam

Subsoil:

5 to 10 inches—yellow sandy clay loam

10 to 18 inches—brownish yellow clay loam that has red mottles

18 to 23 inches—brownish yellow sandy clay that has red mottles

23 to 35 inches—brownish yellow clay loam that has red and yellowish red mottles

Underlying material:

35 to 40 inches—multicolored sandy clay loam saprolite in shades of yellow, red, brown, and white

40 to 62 inches—multicolored sandy loam saprolite in shades of yellow, red, brown, and white

Urban land

Urban land consists of areas that are covered with roads, parking lots, closely spaced houses, buildings, or other structures. Identification of the soils in these areas is not feasible because they are covered or altered.

Udorthents

Udorthents dominantly consist of cut and fill areas where soil material has been removed and placed on an adjacent site. These areas also include quarries, landfills, borrow pits, and recreational areas, such as baseball fields. A typical pedon is not given due to the variable nature of the soil material.

Properties and Qualities of the Wedowee Soil

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Low

Slope class: Gently sloping or moderately sloping

Surface runoff: Medium or rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Moderate or severe

Content of organic matter (surface layer): Low to moderate

Soil reaction: Extremely acid to strongly acid throughout the profile, except where the surface layer has been limed

Parent material: Residuum weathered from felsic crystalline rock

Depth to bedrock: More than 60 inches

Minor Components

Dissimilar:

- The moderately well drained Helena soils at head of drainageways and in slight depressions
- Rock outcrops on the upper side slopes and on small knolls
- The slowly permeable Vance soils on knolls

- Random areas of soils that have bedrock at a depth of less than 60 inches
- Areas of soils that have a loamy subsoil

Similar:

- Random areas of Pacolet soils that have a red subsoil

Land Use

Dominant Uses: Urban land

Other Uses: Recreational development

Agricultural Development

Cropland

Suitability: Poorly suited

Management concerns: Limited size of areas and highly disturbed soils

Management measures and considerations:

- This map unit is difficult to manage for crop production because of highly variable soil properties and the small size of areas.

Pasture and hayland

Suitability: Poorly suited

Management concerns: Limited size of areas and highly disturbed soils

Management measures and considerations:

- This map unit is difficult to manage for the production of pasture and hay crops because of the limited size of its areas, intermittent areas of Urban land, and areas of highly disturbed soils.

Woodland

Suitability: Poorly suited

Management concerns: Limited size of areas

Management measures and considerations:

- This map unit is difficult to manage for timber production because of the limited size of its areas, intermittent areas of Urban land, and areas of highly disturbed soils.

Urban Development

Septic tank absorption fields

Suitability: Suited

Management concerns: Restricted permeability

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems

during periods when the soils are not wet helps to prevent smearing and sealing of trench walls.

Dwellings

Suitability: Well suited

Management concerns:

- There are no significant limitations affecting dwellings.

Small commercial buildings

Suitability: Suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel, compacting roadbeds, and designing roads so that they conform to the natural slope improve soil strength.

Interpretive Groups

Land capability classification: Wedowee—IIIe; Urban land—VIIIs; Udorthents—VIe

Woodland ordination symbol: None assigned

WwB—Winnsboro-Wilkes complex, 2 to 8 percent slopes

Setting

Landscape: Piedmont

Landform: Ridges and hill slopes

Landform position: Winnsboro—slightly concave side slopes; Wilkes—convex side slopes

Shape of areas: Oblong or irregular

Size of areas: 5 to 100 acres

Composition

Winnsboro soil and similar soils: 45 percent

Wilkes soil and similar soils: 40 percent

Dissimilar soils: 15 percent

Typical Profile

Winnsboro

Surface layer:

0 to 6 inches—brown loam

Subsoil:

6 to 35 inches—yellowish brown clay

35 to 40 inches—yellowish brown clay loam that has brownish yellow mottles

Underlying material:

40 to 48 inches—multicolored loam saprolite in shades of brown, yellow, and olive

Bedrock:

48 to 62 inches—weathered, highly fractured hornblende gneiss

Wilkes

Surface layer:

0 to 4 inches—brown sandy loam

Subsoil:

4 to 10 inches—light olive brown clay

Underlying material:

10 to 13 inches—pale olive clay loam saprolite that has yellowish brown mottles

Bedrock:

13 to 42 inches—weathered, moderately fractured hornblende gneiss

Soil Properties and Qualities

Depth class: Winnsboro—deep; Wilkes—shallow

Drainage class: Well drained

Permeability: Winnsboro—slow; Wilkes—moderately slow

Available water capacity: Winnsboro—moderate; Wilkes—low

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Winnsboro—high; Wilkes—moderate

Slope class: Gently sloping

Surface runoff: Winnsboro—medium or rapid; Wilkes—rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Moderate

Content of organic matter (surface layer): Low

Soil reaction: Strongly acid to slightly acid in the A horizon and slightly acid to slightly alkaline in the B and C horizons

Parent material: Residuum weathered from intermediate or mafic high-grade metamorphic or igneous rock

Depth to bedrock: Winnsboro—40 to 60 inches to soft bedrock and more than 60 inches to hard bedrock; Wilkes—10 to 20 inches to soft bedrock

Minor Components

Dissimilar:

- The moderately well drained Helena soils at the head of drainageways and in slight depressions

- Poorly drained soils at the head of drainageways and in slight depressions
- Random areas of moderately deep soils in landscape positions similar to those of the Winnsboro and Wilkes soils

Similar:

- Soils that are similar to the Winnsboro soil but have a red subsoil

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland

Agricultural Development

Cropland

Suitability: Suited

Management concerns: Winnsboro—erodibility; Wilkes—erodibility and rooting depth

Management measures and considerations:

- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Because of the shallow rooting depth, the Wilkes soil is difficult to manage for the economical production of crops.

Pasture and hayland

Suitability: Winnsboro—well suited; Wilkes—suited

Management concerns: Winnsboro—erodibility; Wilkes—erodibility and rooting depth

Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Because of the shallow rooting depth, the Wilkes soil is difficult to manage for the economical production of pasture and hay crops.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management measures and considerations:

- There are no significant limitations affecting woodland management.
- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Winnsboro—restricted permeability; Wilkes—depth to bedrock

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soils are not wet helps to prevent smearing and sealing of trench walls.
- Filter fields located on deeper included soils may perform better than those located on the Winnsboro and Wilkes soils.

Dwellings

Suitability for dwellings without basements:

Winnsboro—well suited; Wilkes—suited

Suitability for dwellings with basements: Poorly suited

Management concerns: Winnsboro—shrink-swell potential; Wilkes—shrink-swell potential and depth to bedrock

Management measures and considerations:

- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Special earthmoving equipment or the drilling and blasting of rock are needed.

Small commercial buildings

Suitability: Suited

Management concerns: Winnsboro—slope; Wilkes—shrink-swell potential, slope, and depth to bedrock

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Special earthmoving equipment or the drilling and blasting of rock are needed.

Local roads and streets

Suitability: Poorly suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.

Interpretive Groups

Land capability classification: Winnsboro—Ile;
Wilkes—IVe

Woodland ordination symbol: Based on loblolly pine as the indicator species, 8A in areas of the Winnsboro soil and 6D in areas of the Wilkes soil

WwD—Winnsboro-Wilkes complex, 8 to 15 percent slopes

Setting

Landscape: Piedmont

Landform: Ridges

Landform position: Winnsboro—slightly concave head slopes; Wilkes—convex side slopes

Shape of areas: Oblong or irregular

Size of areas: 5 to 50 acres

Composition

Winnsboro soil and similar soils: 45 percent

Wilkes soil and similar soils: 45 percent

Dissimilar soils: 10 percent

Typical Profile

Winnsboro

Surface layer:

0 to 6 inches—brown loam

Subsoil:

6 to 35 inches—yellowish brown clay

35 to 40 inches—yellowish brown clay loam that has brownish yellow mottles

Underlying material:

40 to 48 inches—multicolored loam saprolite in shades of brown, yellow, and olive

Bedrock:

48 to 62 inches—weathered, highly fractured hornblende gneiss

Wilkes

Surface layer:

0 to 4 inches—brown sandy loam

Subsoil:

4 to 10 inches—light olive brown clay

Underlying material:

10 to 13 inches—pale olive clay loam saprolite that has yellowish brown mottles

Bedrock:

13 to 42 inches—weathered, moderately fractured hornblende gneiss

Soil Properties and Qualities

Depth class: Winnsboro—deep; Wilkes—shallow

Drainage class: Well drained

Permeability: Winnsboro—slow; Wilkes—moderately slow

Available water capacity: Winnsboro—moderate; Wilkes—low

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Winnsboro—high; Wilkes—moderate

Slope class: Strongly sloping

Surface runoff: Winnsboro—medium or rapid; Wilkes—rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Severe

Content of organic matter (surface layer): Low

Soil reaction: Strongly acid to slightly acid in the A horizon and slightly acid to slightly alkaline in the B and C horizons

Parent material: Residuum weathered from intermediate or mafic high-grade metamorphic or igneous rock

Depth to bedrock: Winnsboro—40 to 60 inches to soft bedrock and more than 60 inches to hard bedrock; Wilkes—10 to 20 inches to soft bedrock

Minor Components

Dissimilar:

- The moderately well drained Helena soils at the head of drainageways and in slight depressions
- Random areas of moderately deep soils that have bedrock at a depth of 20 to 40 inches and are in landscape positions similar to those of the Winnsboro and Wilkes soils
- Rock outcrops on the upper side slopes and on small knolls

Similar:

- Soils that are similar to the Winnsboro soil but have a red subsoil

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Winnsboro—suited; Wilkes—poorly suited

Management concerns: Winnsboro—erodibility and equipment use; Wilkes—erodibility, equipment use, and rooting depth

Management measures and considerations:

- Because of the shallow rooting depth, the Wilkes soil is difficult to manage for the economical production of crops.
- The slope may limit equipment use in the steeper areas during the harvest of hay crops.
- Planting adapted species helps to ensure the production of high-quality forage and reduce the hazard of erosion.

Pasture and hayland

Suitability for pasture: Winnsboro—well suited; Wilkes—suited

Suitability for hayland: Winnsboro—suited; Wilkes—poorly suited

Management concerns: Winnsboro—erodibility; Wilkes—erodibility and rooting depth

Management measures and considerations:

- Because of the shallow rooting depth, the Wilkes soil is difficult to manage for the economical production of pasture and hay crops.
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management concerns:

- There are no significant limitations affecting woodland management.

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.

Urban Development**Septic tank absorption fields**

Suitability: Poorly suited

Management concerns: Winnsboro—restricted permeability; Wilkes—depth to bedrock

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of the septic tank.
- Installing the distribution lines of septic systems during periods when the soils are not wet helps to prevent smearing and sealing of trench walls.
- Filter fields located on deeper included soils may perform better than those located on the Winnsboro and Wilkes soils.

Dwellings

Suitability for dwellings without basements: Suited

Suitability for dwellings with basements: Poorly suited

Management concerns: Winnsboro—slope and shrink-swell potential; Wilkes—shrink-swell potential, slope, and depth to bedrock

Management measures and considerations:

- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Reinforcing basements or backfilling with coarse material helps to strengthen foundations and prevents damage caused by shrinking and swelling.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Special earthmoving equipment or the drilling and blasting of rock are needed.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Poorly suited

Management concerns: Low strength

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.

Interpretive Groups

Land capability classification: Winnsboro—IVe; Wilkes—Vle

Woodland ordination symbol: Based on loblolly pine as the indicator species, 8A in areas of the Winnsboro soil and 6D in areas of the Wilkes soil

WwE—Winnsboro-Wilkes complex, 15 to 30 percent slopes**Setting**

Landscape: Piedmont

Landform: Ridges

Landform position: Winnsboro—slightly concave head slopes; Wilkes—convex side slopes

Shape of areas: Oblong or irregular

Size of areas: 5 to 50 acres

Composition

Winnsboro soil and similar soils: 50 percent

Wilkes soil and similar soils: 40 percent

Dissimilar soils: 10 percent

Typical Profile

Winnsboro

Surface layer:

0 to 6 inches—brown loam

Subsoil:

6 to 35 inches—yellowish brown clay

35 to 40 inches—yellowish brown clay loam that has brownish yellow mottles

Underlying material:

40 to 48 inches—multicolored loam saprolite in shades of brown, yellow, and olive

Bedrock:

48 to 62 inches—weathered, highly fractured hornblende gneiss

Wilkes

Surface layer:

0 to 4 inches—brown sandy loam

Subsoil:

4 to 10 inches—light olive brown clay

Underlying material:

10 to 13 inches—pale olive clay loam saprolite that has yellowish brown mottles

Bedrock:

13 to 42 inches—weathered, moderately fractured hornblende gneiss

Soil Properties and Qualities

Depth class: Winnsboro—deep; Wilkes—shallow

Drainage class: Well drained

Permeability: Winnsboro—slow; Wilkes—moderately slow

Available water capacity: Winnsboro—moderate; Wilkes—low

Depth to high water table: More than 6.0 feet

Shrink-swell potential: Winnsboro—low to high; Wilkes—moderate

Slope class: Moderately steep

Surface runoff: Winnsboro—medium or rapid; Wilkes—rapid

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed

Hazard of water erosion: Very severe

Content of organic matter (surface layer): Low

Soil reaction: Strongly acid to slightly acid in the A

horizon and slightly acid to slightly alkaline in the B and C horizons

Parent material: Residuum weathered from intermediate or mafic high-grade metamorphic or igneous rock

Depth to bedrock: Winnsboro—40 to 60 inches to soft bedrock and more than 60 inches to hard bedrock; Wilkes—10 to 20 inches to soft bedrock

Minor Components

Dissimilar:

- Random areas of moderately deep soils that have soft bedrock at a depth of 20 to 40 inches and are in landscape positions similar to those of the Winnsboro and Wilkes soils
- Random areas of the eroded Winnsboro and Wilkes soils that have a surface layer of clay loam or sandy clay loam
- Random areas of Winnsboro and Wilkes soils which have a gravelly surface layer
- Rock outcrops on the upper side slopes and on small knolls

Similar:

- Soils that are similar to the Winnsboro soil but have a red subsoil

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Winnsboro—poorly suited; Wilkes—unsuited

Management concerns: Winnsboro—erodibility and equipment use; Wilkes—erodibility, equipment use, and rooting depth

Management measures and considerations:

- This map unit has severe limitations affecting crop production. A site should be selected on better suited soils.

Pasture and hayland

Suitability for pasture: Winnsboro—suited; Wilkes—poorly suited

Suitability for hayland: Winnsboro—poorly suited; Wilkes—unsuited

Management concerns: Winnsboro—erodibility and equipment use; Wilkes—erodibility, equipment use, and rooting depth

Management measures and considerations:

- The slope limits equipment use in the steeper areas.

- Because of the shallow rooting depth, the Wilkes soil is difficult to manage for the economical production of pasture and hay crops.

Woodland

Suitability: Well suited

Productivity class: Moderately high for loblolly pine

Management measures and considerations: Erodibility and equipment use

Management measures and considerations:

- Planting the appropriate species, as recommended by a forester, helps to maximize productivity and ensure planting success.
- Establishing permanent plant cover on roads and landings after logging operations helps to reduce the hazard of erosion and prevent the siltation of streams.
- Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope limitation.

Urban Development

Septic tank absorption fields

Suitability: Poorly suited

Management concerns: Winnsboro—restricted permeability and slope; Wilkes—slope and depth to bedrock

Management measures and considerations:

- This map unit has severe limitations affecting septic tank absorption fields.
- The local Health Department should be contacted for guidance in developing sanitary facilities.

Dwellings

Suitability: Poorly suited

Management concerns: Winnsboro—slope and shrink-swell potential; Wilkes—slope and depth to bedrock

Management measures and considerations:

- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Reinforcing basements or backfilling with coarse material helps to strengthen foundations and prevents damage caused by shrinking and swelling.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Special earthmoving equipment or the drilling and blasting of rock are needed.

Small commercial buildings

Suitability: Poorly suited

Management concerns: Slope

Management measures and considerations:

- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Local roads and streets

Suitability: Poorly suited

Management concerns: Low strength and slope

Management measures and considerations:

- Providing sand and gravel and compacting roadbeds improve soil strength.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Groups

Land capability classification: Winnsboro—VIe; Wilkes—VIIe

Woodland ordination symbol: Based on loblolly pine as the indicator species, 8R in areas of the Winnsboro soil and 6R in areas of the Wilkes soil

Use and Management of the Soils

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

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

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

Generally, the soils in Franklin County that are well suited to crops are also well suited to urban uses. The data concerning specific soils in the county can be used in planning future land use patterns. The potential for farming should be considered relative to any soil limitations and the potential for nonfarm development.

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

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

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

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils are identified, the system of land capability classification used by the Natural Resources Conservation Service is explained, the estimated yields of the main crops and hay and pasture plants are listed for each soil, and prime farmland is described.

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

Federal and State regulations require that any area designated as wetlands cannot be altered without prior approval. Contact the local office of the Natural Resources Conservation Service for identification of hydric soils and potential wetlands.

In 1993, approximately 91,612 acres in Franklin County was used for crops (8). Nearly 22,000 acres was used as permanent pasture. In the southern part of Franklin County, the acreage of cropland, pastureland, and forest land is gradually decreasing as land is developed for urban use.

Soybeans, tobacco, and corn are the dominant row crops in Franklin County. Wheat is the most common close-growing crop. It was planted on 8,325 acres in 1993. Barley and oats are also grown. Other crops of minor significance include sorghum and cotton.

Tobacco is the main cash crop grown in Franklin County. In 1993, approximately 13,668,000 pounds of tobacco was harvested from 5,950 acres. Soils that have a sandy surface layer, such as Appling, Varina, State, and Altavista soils, produce the highest yields of tobacco. Other highly productive soils include Vance, Cecil, Duplin, and Georgeville soils.

Specialty crops grown in the county include cucumbers, sweet potatoes, sweet corn, tomatoes, strawberries, watermelons, muscadine grapes, apples, and peaches. In 1994, nearly 1,200 acres was planted in cucumbers.

The latest information about specialty crops can be obtained at the local office of the Cooperative Extension Service or the Natural Resources Conservation Service.

Cropland

Management considerations on cropland in the county include controlling erosion, installing a drainage system, improving soil fertility, applying a system of chemical weed control, and improving tillage.

Erosion control.—Water erosion is a major concern on most of the soils used for cropland in Franklin County. It is a hazard on soils that have slopes of more than 2 percent. Cecil and Pacolet soils are examples. As the slope increases, the hazard of erosion and the difficulty in controlling erosion also increase.

Loss of the surface layer through erosion is damaging. Soil productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Cecil and Vance soils, and on soils that have a layer in or below the subsoil that limits the depth of the root zone, such as Toisnot, Saw, and Wake soils. Erosion on farmland results in the sedimentation of streams. Controlling erosion minimizes the pollution of water by runoff carrying plant nutrients, soil particles, and plant residue. It improves the quality of water for municipal use, for recreation, and for fish and wildlife.

In many sloping areas of clayey soils, preparing a good seedbed is difficult because much or all of the original friable surface layer has been lost through erosion. This degree of erosion is common in areas of Georgeville and Pacolet soils.

Erosion-control practices provide a protective surface cover, reduce runoff, and increase the rate of water infiltration. A cropping system that keeps a vegetative cover on the soil for extended periods helps to minimize soil loss and maintain the productive capacity of the soil. In sloping areas, including forage crops of grasses and legumes in the cropping system helps to control erosion. The forage crops also add nitrogen to the soil and improve tillage.

Minimizing tillage and leaving crop residue on the surface increase the rate of water infiltration, reduce runoff, and help to control erosion. These practices can be effective on most of the soils in the survey area. In the more sloping areas that are used for corn or are double cropped with soybeans, no-till farming is effective in controlling erosion.

Terraces and diversions shorten the length of slopes and thus minimize erosion caused by runoff. They are most effective on very deep, well drained

soils that have simple slopes. Cecil and Georgeville soils are examples. These measures are less effective on soils that have complex slopes because these soils would have bedrock within a depth of 40 inches, would be excessively wet in terrace channels, or would have a clayey subsoil exposed in the terrace channels.

Contour farming and contour stripcropping help to control erosion on many of the soils in the survey area (fig. 6). They are best suited to soils that have smooth, uniform slopes, including most areas of Appling and Varina soils.

Grassed waterways are permanently vegetated, generally broad and shallow, natural or constructed channels that conduct surface water to outlets at a nonerosive velocity. Moderately well drained soils, such as Helena and Duplin soils, which occur along drainageways, commonly are suitable for grassed waterways.

Information about erosion-control measures for each kind of soil is available at the local office of the Natural Resources Conservation Service.

Drainage.—Excessive wetness is a management concern on about 8 percent of the cropland in Franklin County. Some soils are so wet that production of the crops commonly grown in the survey area is difficult unless a drainage system is installed.

Wahee and Chewacla soils and other somewhat poorly drained soils are so wet that crops are damaged during most years unless a drainage system is installed. These soils make up about 18,338 acres in the survey area.

Small areas of wetter soils along drainageways are commonly included in mapping with the moderately well drained Helena and Duplin soils. A drainage system generally is not installed in these included soils or in the poorly drained Toisnot soils, which have a hard, compact, brittle fragipan in the subsoil. The fragipan limits the depth to which tile drains can be installed. Ditches may be used to improve drainage in some areas of these soils.

Managing drainage in conformance with regulations concerning wetlands may require special permits and extra planning. The local office of the Natural Resources Conservation Service should be contacted for identification of hydric soils and potential wetlands.

Soils along the river bottoms in Franklin County are frequently flooded for brief periods, generally between November and June. Flash flooding as a result of intensive rainfall can occur on the upper reaches of stream bottoms at any time of the year.

Soil fertility.—The soils in Franklin County generally are low in natural fertility and are naturally acid. Additions of lime and fertilizer are needed for the production of most kinds of crops.



Figure 6.—An area of contour farming. This management practice helps to control erosion on many of the soils in Franklin County.

Liming requirements are a major concern on cropland. The acidity level in the soil affects the availability of many nutrients to plants and the activity of beneficial bacteria. Lime neutralizes exchangeable aluminum in the soil and thus counteracts the adverse effects of high levels of aluminum on many crops. Liming adds calcium (from calcitic lime) or calcium and magnesium (from dolomitic lime) to the soil.

A soil test is a guide to what amount and kind of lime should be used. The desired pH levels may differ, depending on the soil properties and the crop to be grown.

Nitrogen fertilizer is required for most crops. It is generally not required, however, for peanuts and clover, in some rotations of soybeans, and for alfalfa that is established. A reliable soil test is not available for predicting nitrogen requirements. Appropriate rates of nitrogen application are described in the section “Yields per Acre.”

Soil tests can indicate the need for phosphorus and

potassium fertilizer. Phosphorus and potassium tend to build up in the soil.

Chemical weed control.—The use of herbicides for weed control is a common practice on the cropland in Franklin County. It decreases the need for tillage and is an integral part of modern farming. Selected soil properties, such as organic matter content and texture of the surface layer, affect the rate of herbicide application. Estimates of both of these properties were determined for the soils in this survey area. [Table 15](#) shows a general range of organic matter content in the surface layer of the soils. The texture of the surface layer is shown in the USDA texture column in [table 14](#).

In some areas the organic matter content projected for the different soils is outside the range shown in the table. The content can be higher in soils that have received large amounts of animal or manmade waste. Soils that have recently been brought into cultivation may have a higher content of organic matter in the surface layer than similar soils that have been

cultivated for a long time. Conservation tillage can increase the content of organic matter in the surface layer. A lower content of organic matter is common where the surface layer has been partly or completely removed by erosion or land smoothing. Current soil tests should be used for specific organic matter determinations.

Tilth.—Soil tilth is an important factor in the germination of seeds and the infiltration of water into the soil. Soils that have good tilth are granular and porous.

Some of the soils in the survey area that are used for crops have a light-colored surface layer of sandy loam and a low content of organic matter. Generally, the structure of these soils is weak. Periods of heavy rainfall result in the formation of a crust on the surface. The crust is hard when dry and nearly impervious to water. It reduces the rate of water infiltration and increases the runoff rate. Regular additions of crop residue, manure, and other organic material can improve soil structure and prevent the formation of a crust.

Because of crusting during winter and spring, fall plowing is generally not recommended for soils that have a light-colored surface layer of silt loam. Many of the soils that are plowed in fall are almost as dense and hard at planting time as they were before they were plowed. Most of the cropland in the survey area consists of sloping soils that are subject to erosion if they are plowed in fall.

Eroded, clayey soils, such as Cecil and Georgeville soils, become cloddy if they are plowed outside a narrow range in moisture content. Fall plowing on these soils generally results in better tilth in spring.

Some soils in the survey area, such as the gravelly phases of Georgeville and Varina soils, have poor tilth because of gravel in the surface layer. The content and size of the pebbles affect the use of tillage implements.

Stones and boulders are common on many of the soils in the survey area. In some places the rock fragments prevent tillage. In other places they can be removed.

Pasture and Hayland

In 1993, Franklin County had more than 14,400 beef and dairy cattle (8). Most of the pasture and hayland supports a mixture of grasses and legumes. Most of the hay is grown in rotation with pasture. The harvested hay commonly is rolled into large, round bales or is used as grass silage.

Selection of forage species.—A successful livestock enterprise depends on a forage program that provides large quantities of good-quality feed. In most areas of

hayland and pasture in Franklin County, renovation, brush control, and measures that prevent overgrazing are needed.

The soils in the survey area vary widely in their ability to produce grasses and legumes because of differences in such properties as depth to bedrock or to other limiting layers, internal drainage, and available water capacity. The forage species selected for planting should be appropriate for the soil.

The nearly level and gently sloping, deep and very deep, well drained soils should be planted to the highest producing crops, such as corn silage, alfalfa, or a mixture of alfalfa and orchardgrass or alfalfa and timothy. Sod-forming grasses, such as tall fescue and orchardgrass, minimize erosion in the steeper areas. Alfalfa should be seeded with cool-season grasses in areas where the soil is at least 2 feet deep and is well drained. The more poorly drained soils and the soils that are less than 2 feet deep are suited to clover-grass mixtures or to pure stands of clover or grasses. Legumes can be established through renovation in areas that support sod-forming grasses.

The intended use should be considered when forage species are selected. Selected species should provide maximum quality and versatility in the forage program. Legumes generally produce higher quality feed than grasses. They should be grown to the maximum extent possible. The taller legumes, such as alfalfa and red clover, are more versatile than legumes that are used primarily for grazing, such as white clover. Orchardgrass, timothy, and tall fescue are best suited to use as hay and silage.

Tall fescue is an important cool-season grass. It is suited to a wide range of soil conditions and is grown for both pasture and hay. The growth that occurs from August through November commonly accumulates in the field and is used for grazing in late fall and in winter. For maximum production, nitrogen fertilizer should be applied during the period when the grass is accumulating. The rate of application should be based on the desired level of production.

Warm-season grasses that are planted during the period from early April through late May help to supplement cool-season grasses, such as tall fescue. They grow well during warm periods, especially from mid-June through September, when the growth of cool-season grasses is slow. Examples of warm-season grasses are switchgrass, big bluestem, indiagrass, and Caucasian bluestem.

Maintenance of pasture and hayland.—Renovation can increase forage yields in areas that have a good stand of grass. It includes partially destroying the sod, applying lime and fertilizer, and seeding desirable

forage species. Adding legumes to the stand of grass provides high-quality feed. Legumes increase summer production and transfer nitrogen from the air into the soil. Under growing conditions, alfalfa can fix 200 to 300 pounds of nitrogen per acre per year, red clover can fix 100 to 200 pounds, and ladino clover can fix 100 to 150 pounds. An acre of annual forage legumes, such as vetch, can fix 75 to 100 pounds of nitrogen per year.

Additional information about managing pasture and hayland can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Yields per Acre

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

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

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

A high level of management includes maintaining proper soil reaction and fertility levels as indicated by standard soil tests. The application rate of nitrogen for corn on soils that have a yield potential of 125 to 150 bushels per acre should be 140 to 160 pounds per acre. If the yield potential for corn is 100 bushels per acre or less, a rate of 100 to 120 pounds of nitrogen per acre should be used. The application of nitrogen in excess of that required for potential yields generally is not recommended. The excess nitrogen fertilizer that is not utilized by the crop is an unnecessary expense and causes a hazard of water pollution. If corn or cotton is grown after the harvest of soybeans or

peanuts, nitrogen rates can be reduced by about 20 to 30 pounds per acre. Because nitrogen can be readily leached from sandy soils, applications may be needed on these soils more than once during the growing season.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in [table 5](#) are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops ([14](#)). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

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

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

Class I soils have few limitations that restrict their use.

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

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

Class IV soils have very severe limitations that

reduce the choice of plants or that require very careful management, or both.

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

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

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

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

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

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

The acreage of soils in each capability class and subclass is shown in [table 6](#). The capability classification of each map unit is given in the section "Detailed Soil Map Units" and in the yields table.

Prime Farmland

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

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forest land, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those

needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. The slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 149,873 acres in the survey area, or nearly 47 percent of the total acreage, meets the soil requirements for prime farmland. Scattered areas of this land are throughout the county, mainly in general soil map units 1, 3, and 5, which are described under the heading "General Soil Map Units." The crops grown on this land, mainly soybeans, wheat, and tobacco, account for an estimated one-fourth of the county's total agricultural income each year.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed at the end of this section. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures used to overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in [table 4](#). The location is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

The map units that meet the requirements for prime farmland are:

- AaA Altavista sandy loam, 0 to 3 percent slopes, rarely flooded
- ApB Appling loamy sand, 2 to 6 percent slopes
- CaB Cecil sandy loam, 2 to 6 percent slopes



Figure 7.—A forest buffer zone in an area of woodland and wetland. Forest buffers along streams and rivers help to protect water quality.

CeB2	Cecil clay loam, 2 to 6 percent slopes, eroded
DuA	Duplin sandy loam, 0 to 3 percent slopes
GeB	Georgeville loam, 2 to 6 percent slopes
GkB2	Georgeville clay loam, 2 to 6 percent slopes, eroded
HeB	Helena sandy loam, 2 to 6 percent slopes
HrB	Herndon loam, 2 to 6 percent slopes
StA	State loam, 0 to 3 percent slopes, rarely flooded
VaB	Vance sandy loam, 2 to 6 percent slopes
VgB	Varina gravelly sandy loam, 2 to 6 percent slopes
VnB	Varina loamy sand, 2 to 6 percent slopes
WeB	Wedowee sandy loam, 2 to 6 percent slopes

Woodland Management and Productivity

Albert Coffey, forester, Natural Resources Conservation Service, helped prepare this section.

Owners of woodland in Franklin County have many objectives. These objectives include producing timber; conserving wildlife, soil, and water ([fig. 7](#)); preserving esthetic values; and providing opportunities for recreational activities, such as commercial hunting. Public demand for clean water and recreational areas creates pressures and opportunities for owners of woodland.

For purposes of forest inventory, the predominant

forest types identified in Franklin County are as described in the following paragraphs (11).

Loblolly-shortleaf. This forest type covers 84,255 acres. It is predominantly loblolly pine, shortleaf pine, or other kinds of southern yellow pine (excluding longleaf pine and slash pine) or a combination of these species. Commonly included trees are oak, hickory, and gum.

Oak-pine. This forest type covers 27,731 acres. It is predominantly hardwoods, usually upland oaks. Pine species make up 25 to 50 percent of the stand. Commonly included trees are gum, hickory, and yellow-poplar.

Oak-hickory. This forest type covers 61,156 acres. It is predominantly upland oaks or hickory, or both. Commonly included trees are yellow-poplar, elm, maple, and black walnut.

Oak-gum-cypress. This forest type covers 11,885 acres. It is bottom-land forest consisting predominantly of tupelo, blackgum, sweetgum, oaks, southern cypress, or a combination of these species. Commonly included trees are cottonwood, willow, ash, elm, hackberry, and maple.

The landowner interested in timber production is faced with the challenge of producing greater yields from smaller areas. Meeting this challenge requires intensive management and silvicultural practices. Many modern silvicultural techniques resemble those long practiced in agriculture. They include establishing, weeding, and thinning a desirable young stand; propagating the more productive species and genetic varieties; providing short rotations and complete fiber utilization; controlling insects, diseases, and weeds; and improving tree growth by applications of fertilizer and the installation of a drainage system. Even though timber crops require decades to grow, the goal of intensive management is similar to the goal of intensive agriculture. This goal is to produce the greatest yield of the most valuable crop as quickly as possible.

Commercial forests cover about 191,027 acres, or about 60 percent of the land area of Franklin County (11). Commercial forest is land that is producing or is capable of producing crops of industrial wood and that has not been withdrawn from timber production. Loblolly pine is the most important timber species in the county because it grows fast, is adapted to the soil and climate, brings the highest average sale value per acre, and is easy to establish and manage.

One of the first steps in planning intensive woodland management is to determine the potential productivity of the soil for several alternative tree species. The most productive and valued trees are then selected for each soil type. Site and yield

information enables a forest manager to estimate future wood supplies. These estimates are the basis of realistic decisions concerning expenses and profits associated with intensive woodland management, land acquisition, or industrial investments.

The potential productivity of woodland depends on physiography, soil properties, climate, and the effects of past management. Specific soil properties and site characteristics, including soil depth, texture, structure, and depth to the water table, affect forest productivity primarily by influencing available water capacity, aeration, and root development. The net effects of the interaction of these soil properties and site characteristics determine the potential site productivity. For example, coarse textured soils generally have a low content of nutrients and a low available water capacity. Fine textured soils can have a high content of nutrients and a high available water capacity. When clays are compacted, however, aeration is reduced and root growth is inhibited. Tree species differ in their degree of adaptation to various site conditions. The amount of rainfall and the length of growing season also influence site productivity.

Other site factors are also important. The gradient and length of slopes affect water movement and availability. In mountainous areas, elevation and aspect affect the amount of sunlight a site receives and the rate of evaporation. Sites on south-facing slopes are warmer and drier than those on north-facing slopes. The best sites are generally on north- and east-facing slopes in the lower areas, in sheltered coves, and in gently sloping concave areas. The amount of rainfall and length of growing season influence site productivity.

Loblolly pine can be planted for timber production on most of the soils in Franklin County. Chewacla, Wehadkee, Riverview, and Buncombe soils, however, are better suited to hardwoods because of poorly drained conditions and frequent flooding.

Timber management is beneficial on productive sites for several reasons. Good sites produce a greater quantity and a better quality of yield. Good sites also quickly produce large trees, and thus rotations are shorter and compound interest on forestry investments is minimal.

This soil survey can be used by woodland managers planning ways to increase the productivity of forest land. Some soils respond better to applications of fertilizer than others, and some are more susceptible to landslides and erosion after roads are built and timber is harvested. Some soils require special reforestation efforts. In the section "Detailed Soil Map Units," the description of each map unit in the survey area suitable for timber includes information

about productivity, limitations in harvesting timber, and management concerns in producing timber. [Table 7](#) summarizes this forestry information and rates the soils for a number of factors to be considered in management. *Slight*, *moderate*, and *severe* are used to indicate the degree of the major soil limitations to be considered in management.

[Table 7](#) lists the *ordination symbol* for each soil. The first part of the ordination symbol, a number, indicates the potential productivity of a soil for the indicator species in cubic meters per hectare per year. The larger the number, the greater the potential productivity. Potential productivity is based on the site index and the point where mean annual increment is the greatest.

The second part of the ordination symbol, a letter, indicates the major kind of soil limitation affecting use and management. The letter *R* indicates a soil that has a significant limitation because of the slope. The letter *X* indicates that a soil has restrictions because of stones or rocks on the surface. The letter *W* indicates a soil in which excessive water, either seasonal or year-round, causes a significant limitation. The letter *T* indicates a soil that has, within the root zone, excessive alkalinity or acidity, sodium salts, or other toxic substances that limit the development of desirable trees. The letter *D* indicates a soil that has a limitation because of a restricted rooting depth, such as a shallow soil that is underlain by hard bedrock, a hardpan, or other layers that restrict roots. The letter *C* indicates a soil that has a limitation because of the kind or amount of clay in the upper part of the profile. The letter *S* indicates a dry, sandy soil. The letter *F* indicates a soil that has a high content of coarse fragments. The letter *A* indicates a soil having no significant limitations that affect forest use and management. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, and F.

Ratings of the *erosion hazard* indicate the probability that damage may occur if site preparation or harvesting activities expose the soil. The risk is *slight* if no particular preventive measures are needed under ordinary conditions; *moderate* if erosion-control measures are needed for particular silvicultural activities; and *severe* if special precautions are needed to control erosion for most silvicultural activities. Ratings of moderate or severe indicate the need for construction of higher standard roads, additional maintenance of roads, additional care in planning harvesting and reforestation activities, or the use of special equipment.

Ratings of *equipment limitation* indicate limits on the use of forest management equipment, year-round or seasonal, because of such soil characteristics as

slope, wetness, stoniness, and susceptibility of the surface layer to compaction. As slope gradient and length increase, the use of wheeled equipment becomes more difficult. On the steeper slopes, tracked equipment is needed. On the steepest slopes, even tracked equipment cannot be operated and more sophisticated systems are needed. The rating is *slight* if equipment use is restricted by wetness for less than 2 months and if special equipment is not needed. The rating is *moderate* if slopes are so steep that wheeled equipment cannot be operated safely across the slope, if wetness restricts equipment use from 2 to 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. The rating is *severe* if slopes are so steep that tracked equipment cannot be operated safely across the slope, if wetness restricts equipment use for more than 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. Ratings of moderate or severe indicate a need to choose the best suited equipment and to carefully plan the timing of harvesting and other management activities.

Ratings of *seedling mortality* refer to the probability of the death of the naturally occurring or properly planted seedlings of good stock in periods of normal rainfall, as influenced by kinds of soil or topographic features. Seedling mortality is caused primarily by too much water or too little water. The factors used in rating a soil for seedling mortality are texture of the surface layer, depth to a high water table and the length of the period when the water table is high, rock fragments in the surface layer, rooting depth, and the aspect of the slope. The mortality rate generally is highest on soils that have a sandy or clayey surface layer. The risk is *slight* if, after site preparation, expected mortality is less than 25 percent; *moderate* if expected mortality is between 25 and 50 percent; and *severe* if expected mortality exceeds 50 percent. Ratings of moderate or severe indicate that it may be necessary to use containerized or larger than usual planting stock or to make special site preparations, such as bedding, furrowing, installing a surface drainage system, and providing artificial shade for seedlings. Reinforcement planting is often needed if the risk is moderate or severe.

Ratings of *windthrow hazard* indicate the likelihood that trees will be uprooted by the wind. A restricted rooting depth is the main reason for windthrow. The rooting depth can be restricted by a high water table, by a fragipan, by bedrock, or by a combination of such factors as soil wetness, texture, structure, and depth. The risk is *slight* if strong winds break trees but do not

uproot them; *moderate* if strong winds blow a few trees over and break many trees; and *severe* if moderate or strong winds commonly blow trees over. Ratings of moderate or severe indicate that care is needed in thinning or that the stand should not be thinned at all. Special equipment may be needed to prevent damage to shallow root systems in partial cutting operations. A plan for the periodic removal of windthrown trees and the maintenance of a road and trail system may be needed.

The *potential productivity of common trees* on a soil is expressed as a *site index* and a *volume* number. The predominant common trees are listed in [table 7](#) in the order of their observed occurrence. Generally, only two or three tree species dominate. The first tree listed for each soil is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

For soils that are commonly used for timber production, the yield is predicted in cubic feet per acre per year. It is predicted at the point where mean annual increment culminates. The estimates of the productivity of the soils in this survey are based mainly on loblolly pine, yellow-poplar, and sweetgum ([3](#), [4](#), [6](#)).

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years (50 years in this survey). This index applies to fully stocked, even-aged, unmanaged stands. Productivity of a site can be improved through management practices, such as bedding, ditching, managing water, applying fertilizer, and planting genetically improved species.

The *volume* is the yield likely to be produced by the most important trees, expressed in cubic feet per acre per year. Cubic feet per acre can be converted to cubic meters per hectare by dividing by 14.3. It can be converted to board feet by multiplying by a factor of about 5. For example, a productivity class of 8 means that the soil can be expected to produce about 114 cubic feet per acre per year at the point where mean annual increment culminates, or about 570 board feet per acre per year.

Trees to plant are those that are used for reforestation or, under suitable conditions, natural regeneration. They are suited to the soils and can produce a commercial wood crop. The desired product, topographic position (such as a low, wet area), and personal preference are three factors among many that can influence the choice of trees for use in reforestation.

Recreation

The soils of the survey area are rated in [table 8](#) according to the limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

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

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

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have gentle slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

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

shaping sites or of building access roads and parking areas.

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

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

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

Wildlife Habitat

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

In [table 9](#), the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat. The ratings in [table 9](#) are intended to be used as a guide and are not site specific. Onsite investigation is needed for individual management plans.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of

fair indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

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

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

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

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

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

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth

of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

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

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

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

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

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

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

Engineering

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

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and

construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

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

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

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

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

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

Building Site Development

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

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

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

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock, depth to a

high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, depth to a high water table, depth to bedrock, and the available water capacity in the upper 40 inches affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established. Soil tests are essential to determine liming and fertilizer needs. Help in making soil tests or in deciding what soil additive, if any, should be used can be obtained from the office of the Franklin Soil and Water Conservation District or the local office of the Cooperative Extension Service.

Sanitary Facilities

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

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

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that

part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, depth to a high water table, depth to bedrock, and flooding affect absorption of the effluent. Large stones and bedrock interfere with installation.

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

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. The animal waste lagoons commonly used in farming operations are not considered in the ratings. They are generally deeper than the lagoons referred to in the table and rely on anaerobic bacteria to decompose waste materials.

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

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope or bedrock can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the

site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of groundwater pollution. Ease of excavation and revegetation should be considered.

The ratings in **table 11** are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

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

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

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

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of

roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

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

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

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

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

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

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

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

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

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

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

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

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

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and for embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and

special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

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

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area. Ponds that are less than about 2 acres in size are not shown on the maps because of the scale of mapping.

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

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

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

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock or to other layers that affect the rate of water movement, permeability, depth to a high water table or depth of standing water if the soil is subject to

ponding, slope, susceptibility to flooding, subsidence of organic layers, and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Drainage may be a major management consideration in some areas. Management of drainage in conformance with regulations concerning wetlands may require special permits and extra planning. The local office of the Natural Resources Conservation Service should be contacted for identification of hydric soils and potential wetlands.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to a high water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the availability of suitable irrigation water, the depth of the root zone, and soil reaction.

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

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

Soil Properties

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

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed (13). During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

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

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

Engineering Index Properties

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

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

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages, by weight, of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and

less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, by volume, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (2) and the system adopted by the American Association of State Highway and Transportation Officials (1).

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

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

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

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

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3

inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

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

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

Physical and Chemical Properties

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

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

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

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $\frac{1}{3}$ -bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density

is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of movement of water through the soil when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

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

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

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

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

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

moderate, 3 to 6 percent; and *high*, more than 6 percent.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.64. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

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

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In [table 15](#), the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

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

Hydrologic soil groups are used to estimate runoff from precipitation. Soils are assigned to one of four groups. They are grouped according to the infiltration of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

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

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

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

or soils of moderately fine texture or fine texture.

These soils have a slow rate of water transmission.

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

If a soil is assigned to two hydrologic groups in [table 16](#), the first letter is for drained areas and the second is for undrained areas.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflowing streams, by runoff from adjacent slopes, or by inflow from high tides. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in swamps and marshes or in a closed depression is considered ponding.

[Table 16](#) gives the frequency and duration of flooding and the time of year when flooding is most likely to occur.

Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as none, rare, occasional, or frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of flooding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of flooding is more than 50 percent in any year).

Common is used when occasional and frequent classes are grouped for certain purposes. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

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

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

High water table (seasonal) is the highest level of a

saturated zone in the soil in most years. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. Indicated in [table 16](#) are the depth to the high water table; the kind of water table—that is, *perched* or *apparent*; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in [table 16](#).

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the high water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The

rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

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

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

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

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (15). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or on laboratory measurements. Table 17 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders, primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid climate, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizon development, plus *udult*, the suborder of the Ultisols that occurs in humid climates).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup

on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, semiactive, thermic Typic Hapludults.

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

The orders in this survey area are Entisol, Inceptisol, Ultisol, and Alfisol.

Entisols have been little affected by soil-forming processes. A thin A horizon is the only distinct pedogenic horizon in these soils. Fluvaquents, Psamments, and Udorthents are examples of Entisols.

Fluvaquents are very deep, poorly drained soils that have a thin A horizon. Typic Fluvaquents are fine-loamy and have mixed mineralogy. They include Wehadkee soils in wet, swampy areas on flood plains.

Psamments are shallow to very deep, excessively drained soils. Udipsamments are sandy and have mixed mineralogy. They include Wake soils on Piedmont uplands and Buncombe soils on flood plains.

Udorthents are deep or very deep, moderately well drained or well drained soils that have a very thin A horizon. The Udorthents in cut and fill areas that are associated with Urban land were not classified below the category of the great group.

Inceptisols in this survey area have a cambic horizon. Inceptisols generally have a very low degree of base saturation. Dystrocrepts are an example of Inceptisols.

Dystrocrepts are moderately deep to very deep, somewhat poorly drained to well drained soils. Typic Dystrocrepts are coarse-loamy and have mixed mineralogy. They include Wateree soils on uplands.

Fluvaquentic Dystrocrepts and Fluventic Dystrocrepts are fine-loamy and have mixed mineralogy. They include Chewacla and Riverview soils on flood plains.

Ultisols and Alfisols have an argillic horizon that exhibits clay translocation. Ultisols are leached to a greater degree than Alfisols. Hapludults, Kanhapludults, and Paleudults are examples of Ultisols. Hapludalfs are an example of Alfisols.

Hapludults and Kanhapludults are moderately deep to very deep, moderately well drained or well drained soils that have a moderately thick subsoil. Typic Hapludults and Typic Kanhapludults are fine-loamy or clayey and have kaolinitic or mixed mineralogy. They include Altavista, Georgeville, and Vance soils on low stream terraces and uplands.

Paleudults are very deep, moderately well drained or well drained soils that have a thick subsoil. They are clayey and have kaolinitic mineralogy. They include Duplin and Varina soils.

Hapludalfs are shallow to deep, well drained soils that are loamy or fine textured and have mixed mineralogy. Typic Hapludalfs include Winnsboro and Wilkes soils. They are not extensive in the survey area.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The location of the typical pedon is described, and coordinates generally are identified by the State plane grid system or by longitude and latitude. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (16). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (15) and in "Keys to Soil Taxonomy" (17). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

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

Altavista Series

Depth class: Very deep

Drainage class: Moderately well drained

Permeability: Moderate

Parent material: Loamy fluvial and marine sediments

Landscape: Piedmont and Coastal Plain

Landform: Low stream terraces

Landform position: Planar to slightly concave slopes

Slope range: 0 to 3 percent

Taxonomic class: Fine-loamy, mixed, semiactive, thermic Aquic Hapludults

Typical Pedon

Altavista sandy loam, 0 to 3 percent slopes, rarely flooded; about 5.6 miles east of Louisburg on North Carolina Highway 581, about 1.0 mile south on Secondary Road 1002, about 400 feet west on a private dirt road, about 1.0 mile northwest on the farm road past the barns and through two gates, about 100 feet south of the road, in a field; Justice USGS topographic quadrangle; lat. 36 degrees 03 minutes 11 seconds N. and long. 78 degrees 12 minutes 25 seconds W.

Ap—0 to 9 inches; dark grayish brown (2.5Y 4/2)

sandy loam; weak medium granular structure; very friable; many fine roots throughout; neutral; abrupt smooth boundary.

E—9 to 16 inches; light yellowish brown (2.5Y 6/4)

sandy loam; weak medium granular structure; friable; few fine roots throughout; slightly acid; abrupt smooth boundary.

Bt—16 to 46 inches; brownish yellow (10YR 6/6)

sandy clay loam; moderate medium subangular blocky structure; firm; common discontinuous distinct strong brown (7.5YR 4/6) clay films on faces of peds; common medium distinct light gray (2.5Y 7/1) irregularly shaped iron depletions with sharp boundaries in the matrix; common fine distinct very pale brown (10YR 7/4) and few fine distinct yellowish brown (10YR 5/8) irregularly shaped masses of iron accumulation with clear boundaries throughout; few fine red and black concretions; few fine flakes of mica; strongly acid; clear wavy boundary.

BC—46 to 54 inches; brownish yellow (10YR 6/6)

sandy loam; weak medium subangular blocky structure; friable; few discontinuous distinct strong brown (7.5YR 4/6) clay films on faces of peds; common medium distinct light gray (10YR 7/1) irregularly shaped iron depletions with clear boundaries in the matrix; few medium distinct light yellowish brown (10YR 6/4) irregularly shaped masses of iron accumulation with clear boundaries throughout; few fine flakes of mica; 5 percent, by volume, rounded quartz pebbles; very strongly acid; clear wavy boundary.

Cg1—54 to 58 inches; light gray (10YR 7/2) coarse

sandy loam; massive; very friable; common medium faint very pale brown (10YR 7/3)

irregularly shaped masses of iron accumulation with clear boundaries in the matrix; common distinct yellow (10YR 7/6) firm irregularly shaped very coarse pockets of clay loam; few fine flakes of mica; 5 percent, by volume, rounded quartz pebbles; very strongly acid; abrupt smooth boundary.

Cg2—58 to 62 inches; light gray (2.5Y 7/2) clay loam; massive; firm; common fine prominent light yellowish brown (2.5Y 6/4) and common coarse distinct brownish yellow (10YR 6/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; few fine flakes of mica; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to more than 60 inches

Depth to bedrock: More than 60 inches

Content and size of rock fragments: Less than 5 percent, by volume, in the A and B horizons and less than 20 percent in the C horizon; mostly pebbles

Reaction: Extremely acid to moderately acid throughout the profile, except where the surface layer has been limed

A or Ap horizon:

Color—hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 1 to 4

Texture—sandy loam

E horizon:

Color—hue of 10YR to 2.5Y, value of 5 to 7, and chroma of 3 to 8

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

Bt horizon:

Color—hue of 7.5YR to 2.5Y, value of 5 to 7, and chroma of 3 to 8

Texture—loam, sandy clay loam, or clay loam
Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

BC horizon:

Color—hue of 7.5YR to 2.5Y, value of 5 to 7, and chroma of 3 to 8

Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam, or silt loam
Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

C horizon:

Color—hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 3 to 8

Texture—sandy or loamy sediments

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Cg horizon:

Color—hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 1 or 2

Texture—sandy or loamy sediments

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of red, brown, or yellow

Appling Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Parent material: Residuum weathered from felsic igneous and metamorphic rock

Landscape: Piedmont

Landform: Broad ridges

Landform position: Convex side slopes

Slope range: 2 to 6 percent

Taxonomic class: Fine, kaolinitic, thermic Typic Kanhapludults

Typical Pedon

Appling loamy sand, 2 to 6 percent slopes (fig. 8); about 10.5 miles east of Louisburg on North Carolina Highway 581, about 0.7 mile past Justice, 125 feet east of the road, in a field; Justice USGS topographic quadrangle; lat. 36 degrees 02 minutes 56 seconds N. and long. 78 degrees 10 minutes 05 seconds W.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) loamy sand; moderate medium granular structure; very friable; slightly acid; abrupt smooth boundary.

Bt1—5 to 12 inches; strong brown (7.5YR 5/8) sandy clay; few fine prominent red (10R 5/8) mottles; weak medium subangular blocky structure; friable; few distinct clay films on faces of pedis; very strongly acid; gradual wavy boundary.

Bt2—12 to 26 inches; strong brown (7.5YR 5/8) clay; common coarse prominent red (10R 5/8) mottles; moderate medium subangular blocky structure; firm; common distinct clay films on faces of pedis; very strongly acid; gradual wavy boundary.

Bt3—26 to 44 inches; strong brown (7.5YR 5/8) sandy clay; weak medium subangular blocky structure;



Figure 8.—Typical pedon of Appling loamy sand. The clayey Appling soils typically have a thick loamy surface layer as a result of Coastal Plain capping. Depth is marked in inches.

common medium prominent yellowish brown (10YR 5/8) and few fine distinct yellow (10YR 7/6) mottles; weak medium subangular blocky structure; friable; few distinct clay films on faces of peds; common medium distinct firm rounded pockets of clay loam distributed randomly throughout the horizon; very strongly acid; gradual wavy boundary.

BC—44 to 58 inches; yellowish red (5YR 5/8) clay loam; few medium prominent yellow (10YR 7/6) and few fine prominent strong brown (7.5YR 5/8) mottles; weak fine and medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

C—58 to 62 inches; yellowish red (5YR 5/8) clay loam saprolite; common prominent light yellowish brown (10YR 6/4) and common prominent white (10YR 8/2) mottles; massive; friable; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches

Depth to bedrock: More than 60 inches

Content and size of rock fragments: Less than 35 percent, by volume, in the A horizon and less than 10 percent in the B and C horizons; mostly pebbles

Reaction: Very strongly acid or strongly acid throughout the profile, except where the surface layer has been limed

Ap horizon:

Color—hue of 5YR to 2.5Y, value of 3 to 6, and chroma of 2 to 6

Texture—loamy sand

Bt horizon:

Color—hue of 5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8

Texture—clay loam, sandy clay, or clay

Mottles—shades of red, yellow, or brown

BC horizon:

Color—hue of 5YR to 2.5Y, value of 4 to 7, and chroma of 4 to 8

Texture—sandy clay loam, clay loam, or sandy clay

Mottles—shades of red, yellow, brown, or white

C horizon:

Color—horizon has hue of 5YR to 2.5Y, value of 4 to 7, and chroma of 4 to 8 or is multicolored in shades of brown, yellow, or white

Texture—loamy saprolite

Mottles—shades of red, yellow, brown, or white

Buncombe Series

Depth class: Very deep

Drainage class: Excessively drained

Permeability: Rapid or very rapid

Parent material: Alluvium from soils that formed in residuum derived from metamorphic and igneous rock

Landscape: Piedmont and Coastal Plain

Landform: Flood plains

Landform position: Natural levees

Slope range: 0 to 3 percent

Taxonomic class: Mixed, thermic Typic Udipsamments

Typical Pedon

Buncombe loamy fine sand in an area of Riverview and Buncombe soils, 0 to 3 percent slopes, frequently flooded; about 9.6 miles south of Louisburg on North Carolina Highway 39, about 2.1 miles on North Carolina Highway 98 southeast of Bunn, 0.5 mile northeast on Secondary Road 1611 across the Tar River, about 0.6 mile southeast of the road along the Tar River, in the woods; Bunn East USGS topographic quadrangle; lat. 35 degrees 56 minutes 04 seconds N. and long. 78 degrees 10 minutes 47 seconds W.

- A—0 to 7 inches; dark yellowish brown (10YR 4/4) loamy fine sand; moderate medium granular structure; very friable; many very fine and medium roots; very strongly acid; abrupt smooth boundary.
- Bw—7 to 15 inches; yellowish brown (10YR 5/4) loamy fine sand; weak medium granular structure; very friable; common fine roots; few very fine flakes of mica; moderately acid; clear smooth boundary.
- C1—15 to 48 inches; light yellowish brown (10YR 6/4) fine sand; single grain; loose; few fine roots; common very fine flakes of mica; moderately acid; clear smooth boundary.
- C2—48 to 55 inches; yellowish brown (10YR 5/4) loamy fine sand; single grain; loose; few fine roots; moderately acid; clear smooth boundary.
- C3—55 to 62 inches; yellowish brown (10YR 5/6) loamy fine sand; single grain; loose; few fine roots; common very fine flakes of mica; moderately acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches

Depth to bedrock: More than 60 inches

Rock fragments: Layers of waterworn pebbles and cobbles are in the underlying material of some pedons

Reaction: Very strongly acid to slightly acid throughout the profile

A horizon:

Color—hue of 10YR to 2.5Y, value of 3 to 5, and chroma of 2 to 6

Texture—loamy fine sand

Bw horizon:

Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8

Texture—sand, loamy sand, or loamy fine sand

C horizon:

Color—hue of 5YR to 2.5Y and value and chroma of 3 to 8

Texture—sand, loamy sand, or loamy fine sand

above a depth of 40 inches; sand to loam or stratified below a depth of 40 inches

Cecil Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Parent material: Residuum weathered from igneous or high-grade metamorphic rock

Landscape: Piedmont

Landform: Broad ridges

Landform position: Convex side slopes

Slope range: 2 to 10 percent

Taxonomic class: Fine, kaolinitic, thermic Typic Kanhapludults

Typical Pedon

Cecil sandy loam, 2 to 6 percent slopes ([fig. 9](#)); about 9.7 miles west of Louisburg on North Carolina Highway 56 to Franklinton, about 4.4 miles south on U.S. Highway 1, about 0.4 mile east on North Carolina Highway 96, about 500 feet north of the road, in a field; Franklinton USGS topographic quadrangle; lat. 36 degrees 02 minutes 24 seconds N. and long. 78 degrees 29 minutes 27 seconds W.

- Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) sandy loam; weak medium granular structure; very friable; slightly acid; abrupt smooth boundary.
- Bt1—8 to 26 inches; red (10R 4/8) clay; moderate medium subangular blocky structure; firm; common clay films on faces of pedis; strongly acid; gradual wavy boundary.
- Bt2—26 to 42 inches; red (10R 4/8) clay; few fine prominent yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; firm; common clay films on faces of pedis; very strongly acid; gradual wavy boundary.
- BC—42 to 50 inches; red (2.5YR 4/8) clay loam; few fine distinct yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.
- C—50 to 73 inches; red (2.5YR 4/8) loam saprolite; common medium distinct pale yellow (2.5Y 7/4) and common distinct brown (7.5YR 5/4) mottles; massive; very friable; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches

Depth to bedrock: More than 60 inches

Content and size of rock fragments: Less than 35 percent, by volume, in the A horizon and less than

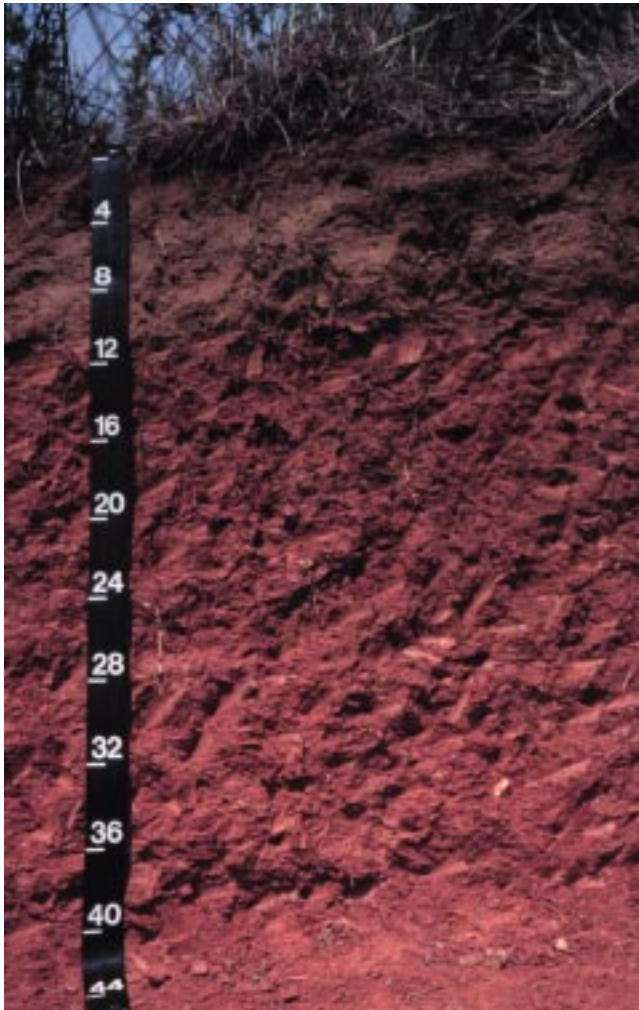


Figure 9.—Typical pedon of Cecil sandy loam. The Cecil soils occur on broad ridges throughout the Piedmont. Depth is marked in inches.

10 percent in the Bt horizon; mostly pebbles or cobbles

Reaction: Very strongly acid to moderately acid in the A horizon, except where the surface layer has been limed, and very strongly acid or strongly acid in the B and C horizons

Ap horizon:

Color—hue of 2.5YR to 10YR, value of 3 to 5, and chroma of 2 to 8
Texture—sandy loam or clay loam

Bt horizon:

Color—hue of 10R or 2.5YR, value of 4 or 5, and chroma of 6 or 8
Texture—clay loam, sandy clay, or clay

BC horizon:

Color—hue of 10R to 5YR, value of 4 or 6, and chroma of 4 to 8
Texture—loam, sandy clay loam, or clay loam
Mottles—shades of yellow or brown

C horizon:

Color—horizon has hue of 10R to 5YR, value of 4 or 6, and chroma of 4 to 8 or is multicolored in shades of red, brown, yellow, or white
Texture—loamy saprolite
Mottles—shades of red, yellow, brown, or white

Chewacla Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Permeability: Moderate

Parent material: Alluvium from soils that formed in residuum derived from metamorphic or igneous rock

Landscape: Piedmont

Landform: Flood plains

Landform position: Natural levees

Slope range: 0 to 3 percent

Taxonomic class: Fine-loamy, mixed, semiactive, thermic Fluvaquentic Dystrochrepts

Typical Pedon

Chewacla loam in an area of Chewacla and Wehadkee soils, 0 to 3 percent slopes, frequently flooded; about 8.3 miles north of Louisburg on U.S. Highway 401 to Kearney, about 2.6 miles southeast on Secondary Road 1401, about 0.6 mile northeast on Secondary Road 1412, about 600 feet east of the road along the flood plain on the south side of Sandy Creek; Gold Sand USGS topographic quadrangle; lat. 36 degrees 12 minutes 33 seconds N. and long. 78 degrees 13 minutes 38 seconds W.

A1—0 to 3 inches; brown (10YR 4/3) loam; weak fine granular structure; very friable; common medium distinct brown (7.5YR 4/4) irregularly shaped masses of iron accumulation with clear boundaries throughout; strongly acid; abrupt smooth boundary.

A2—3 to 10 inches; brown (10YR 5/3) loam; weak fine granular structure; very friable; few medium distinct dark brown (7.5YR 3/2) irregularly shaped iron depletions with clear boundaries in the matrix; common medium distinct brown (7.5YR 4/4) irregularly shaped masses of iron accumulation with clear boundaries throughout; moderately acid; clear smooth boundary.

Bw1—10 to 16 inches; brown (10YR 5/3) clay loam; weak fine granular structure; friable; few medium distinct dark brown (7.5YR 3/2) irregularly shaped iron depletions with clear boundaries in the matrix; common medium distinct brown (7.5YR 4/4) irregularly shaped masses of iron accumulation with clear boundaries throughout; common fine charcoal pebbles; moderately acid; clear smooth boundary.

Bw2—16 to 28 inches; brown (10YR 5/3) loam; weak medium subangular blocky structure; friable; common medium distinct light brownish gray (10YR 6/2) irregularly shaped iron depletions with clear boundaries in the matrix; common medium distinct brown (7.5YR 4/4) masses of iron accumulation with clear boundaries throughout; gradual wavy boundary.

C—28 to 33 inches; yellowish red (5YR 5/6) silt loam; massive; friable; many medium prominent grayish brown (10YR 5/2) irregularly shaped iron depletions with clear boundaries in the matrix; common fine flakes of mica; moderately acid; gradual wavy boundary.

Cg1—33 to 48 inches; light gray (10YR 6/1) fine sandy loam; massive; friable; common medium distinct brownish yellow (10YR 6/6) and few fine prominent strong brown (7.5YR 5/6) irregularly shaped masses of iron accumulation with clear boundaries throughout; moderately acid; gradual wavy boundary.

Cg2—48 to 62 inches; gray (N 5/0) fine sandy loam; massive; friable; moderately alkaline.

Range in Characteristics

Thickness of the solum: 15 to 70 inches

Depth to bedrock: More than 60 inches

Content and size of rock fragments: Less than 5 percent, by volume, in the A horizon and the upper part of the B horizon and less than 15 percent in the lower part of the B horizon; mostly pebbles

Reaction: Very strongly acid to slightly acid within a depth of 40 inches, except where the surface layer has been limed, and very strongly acid to slightly alkaline below a depth of 40 inches

A horizon:

Color—hue of 5YR to 10YR, value of 3 to 5, and chroma of 1 to 6

Texture—loam

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Bw horizon:

Color—horizon has hue of 5YR to 2.5Y, value of 4 to 7, and chroma of 3 to 8 or is mottled in shades of brown, red, and gray

Texture—sandy loam, fine sandy loam, loam, sandy clay loam, clay loam, silt loam, or silty clay loam

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of brown, yellow, or red

C horizon:

Color—horizon has hue of 5YR to 2.5Y, value of 4 to 7, and chroma of 3 to 8 or is mottled in shades of brown, red, and gray

Texture—loamy above a depth of 40 inches; variable, ranging from extremely gravelly sand to clay, below a depth of 40 inches

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of brown, yellow, or red

Cg horizon:

Color—horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2 or is neutral in hue

Texture—loamy above a depth of 40 inches; variable, ranging from extremely gravelly sand to clay, below a depth of 40 inches

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of brown, yellow, or red

Duplin Series

Depth class: Very deep

Drainage class: Moderately well drained

Permeability: Moderately slow

Parent material: Unconsolidated clayey marine sediments over residuum weathered from felsic crystalline rock

Landscape: Coastal Plain

Landform: Broad ridges

Landform position: Planar to slightly concave side slopes

Slope range: 0 to 3 percent

Taxonomic class: Fine, kaolinitic, thermic Aquic Paleudults

Typical Pedon

Duplin sandy loam, 0 to 3 percent slopes; about 8.0

miles south of Louisburg on U.S. Highway 401, about 1.2 miles west on Secondary Road 1100, about 75 feet south of the road, in a cultivated field; Rolesville USGS topographic quadrangle; lat. 35 degrees 59 minutes 18 seconds N. and long. 78 degrees 24 minutes 08 seconds W.

Ap—0 to 11 inches; dark grayish brown (10YR 4/2) sandy loam; weak medium granular structure; very friable; slightly acid; abrupt smooth boundary.

E—11 to 18 inches; pale brown (10YR 6/3) sandy loam; weak medium granular structure; very friable; strongly acid; clear smooth boundary.

Bt1—18 to 24 inches; brownish yellow (10YR 6/6) sandy clay; moderate medium subangular blocky structure; firm; common faint clay films on faces of ped; many medium distinct pale brown (10YR 6/3) irregularly shaped iron depletions with sharp boundaries in the matrix; very strongly acid; clear wavy boundary.

Bt2—24 to 48 inches; light olive brown (2.5Y 5/6) sandy clay; moderate medium subangular blocky structure; firm; common faint clay films on faces of ped; common medium distinct light gray (10YR 7/2) iron depletions with clear boundaries in the matrix; common medium distinct strong brown (7.5YR 5/6) irregularly shaped masses of iron accumulation with clear boundaries throughout; very strongly acid; clear wavy boundary.

Btg—48 to 68 inches; light gray (10YR 7/2) sandy clay; weak medium subangular blocky structure; friable; common faint clay films on faces of ped; common medium distinct light yellowish brown (10YR 6/4) and few medium distinct yellowish brown (10YR 5/6) irregularly shaped masses of iron accumulation with clear boundaries throughout; very strongly acid; clear smooth boundary.

2BCg—68 to 80 inches; light gray (10YR 7/2) sandy clay; weak coarse subangular blocky structure; friable; common medium distinct light yellowish brown (10YR 6/4) and few medium distinct yellowish red (5YR 5/6) irregularly shaped masses of iron accumulation with clear boundaries throughout; very strongly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches

Depth to bedrock: More than 60 inches

Content of rock fragments: None throughout the profile

Reaction: Very strongly acid or strongly acid throughout the profile, except where the surface layer has been limed

Ap horizon:

Color—hue of 10YR to 2.5Y, value of 4 to 6, and chroma of 0 to 3

Texture—sandy loam

E horizon:

Color—hue of 10YR to 2.5Y, value of 4 to 7, and chroma of 2 to 4

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

Bt horizon:

Color—hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 3 to 8

Texture—sandy clay loam, clay loam, sandy clay, or clay

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Btg horizon:

Color—hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 2 to 8

Texture—sandy clay loam, clay loam, sandy clay, or clay

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

2BCg horizon:

Color—hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 2 to 8

Texture—sandy clay loam, clay loam, or sandy clay

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Georgeville Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Parent material: Residuum weathered from fine grained metamorphic rock

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Convex side slopes

Slope range: 2 to 30 percent

Taxonomic class: Fine, kaolinitic, thermic Typic Hapludults

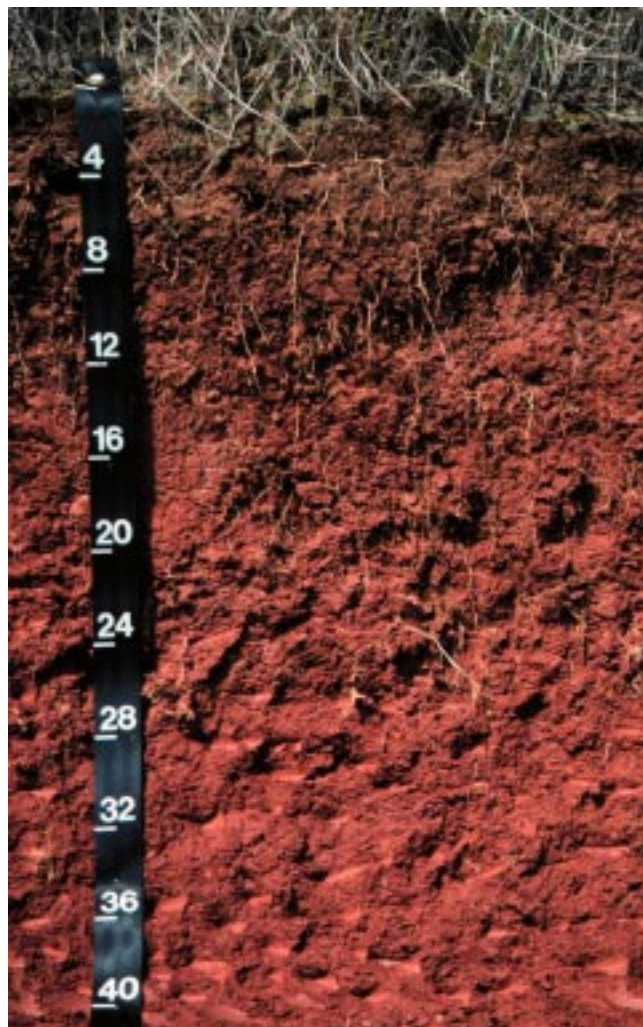


Figure 10.—Typical pedon of Georgeville loam. The clayey Georgeville soils have a subsoil that extends from a depth of 40 inches to more than 60 inches. Depth is marked in inches.

Typical Pedon

Georgeville loam, 2 to 6 percent slopes (fig. 10); about 6.0 miles east of Louisburg on North Carolina Highway 581, about 6.0 miles south on Secondary Road 1002, about 0.2 mile west on Secondary Road 1634, about 1,000 feet south of the road, in a cultivated field; Bunn East USGS topographic quadrangle; lat. 35 degrees 58 minutes 45 seconds N. and long. 78 degrees 10 minutes 38 seconds W.

- A—0 to 8 inches; yellowish brown (10YR 5/8) loam; weak medium granular structure; very friable; strongly acid; clear smooth boundary.
- Bt1—8 to 15 inches; strong brown (7.5YR 5/8) clay loam; common medium distinct yellowish red (5YR 5/8) mottles; moderate fine subangular blocky

- structure; friable; few distinct clay films on faces of peds; very strongly acid; clear smooth boundary.
- Bt2—15 to 45 inches; red (2.5YR 5/8) clay; common medium distinct yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; very strongly acid; clear wavy boundary.
- BC—45 to 50 inches; red (2.5YR 5/8) clay loam; common medium distinct reddish yellow (5YR 7/8) mottles; moderate fine subangular blocky structure; friable; very strongly acid; clear wavy boundary.
- C—50 to 62 inches; red (2.5YR 5/8) loam saprolite; many medium distinct reddish yellow (5YR 7/8) and common medium distinct yellowish brown (10YR 5/6) mottles; massive; friable; very strongly acid.

Range in Characteristics

- Thickness of the solum:* 30 to 60 inches
- Depth to bedrock:* More than 60 inches
- Content and size of rock fragments:* Less than 20 percent, by volume, in the A and BA horizons and less than 10 percent in the B and C horizons; mostly pebbles and cobbles
- Reaction:* Very strongly acid to neutral in the A horizon and very strongly acid or strongly acid in the B and C horizons

A horizon:

- Color—horizon has hue of 5YR to 2.5Y or is neutral in hue, has value of 4 or 5, and has chroma of 0 to 8
- Texture—loam, gravelly loam, or clay loam

Bt horizon:

- Color—hue of 10R to 2.5YR, value of 4 or 5, and chroma of 6 or 8
- Texture—clay loam, silty clay loam, silty clay, or clay
- Mottles—shades of red, yellow, or brown

BC horizon:

- Color—hue of 10R to 5YR, value of 4 to 6, and chroma of 6 or 8
- Texture—loam, clay loam, silt loam, or silty clay loam
- Mottles—shades of yellow or brown

C horizon:

- Color—hue of 10R to 10YR, value of 4 to 6, and chroma of 3 to 8
- Texture—sandy loam, fine sandy loam, very fine sandy loam, loam, or silt loam
- Mottles—shades of brown, yellow, gray, or red

Helena Series

Depth class: Very deep

Drainage class: Moderately well drained

Permeability: Slow

Parent material: Residuum weathered from a mixture of felsic, intermediate, or mafic igneous or high-grade metamorphic rock

Landscape: Piedmont

Landform: Broad ridges, head of drainageways, and slight depressions

Landform position: Concave head slopes and slightly concave slopes

Slope range: 2 to 6 percent

Taxonomic class: Fine, mixed, semiactive, thermic Aquic Hapludults

Typical Pedon

Helena sandy loam, 2 to 6 percent slopes; about 8.8 miles south of Louisburg on North Carolina Highway 56, about 0.5 mile north on Secondary Road 1468, about 200 feet west of the road, in a field; Justice USGS topographic quadrangle; lat. 36 degrees 06 minutes 10 seconds N. and long. 78 degrees 09 minutes 23 seconds W.

Ap—0 to 4 inches; brown (10YR 5/3) sandy loam; weak medium granular structure; very friable; slightly alkaline; abrupt smooth boundary.

Bt1—4 to 10 inches; brownish yellow (10YR 6/6) clay; weak medium subangular blocky structure; very firm; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt2—10 to 20 inches; brownish yellow (10YR 6/6) clay; moderate medium subangular blocky structure; very firm; common distinct clay films on faces of peds; common medium distinct strong brown (7.5YR 5/8) irregularly shaped masses of iron accumulation with clear boundaries throughout; few fine flakes of mica; very strongly acid; gradual wavy boundary.

Bt3—20 to 25 inches; yellow (10YR 7/8) clay loam; weak medium subangular blocky structure; firm; few faint clay films on faces of peds; few fine prominent red (2.5YR 5/8) and few fine distinct strong brown (7.5YR 5/8) irregularly shaped masses of iron accumulation with clear boundaries throughout; very strongly acid; gradual wavy boundary.

Bt4—25 to 32 inches; 40 percent light brownish gray (10YR 6/2), 35 percent yellowish brown (10YR 5/8), and 25 percent yellow (2.5Y 7/6) clay loam; weak medium subangular blocky structure; firm; few faint clay films on faces of peds; areas with

gray colors are iron depletions and areas with brown and yellow colors are iron accumulations; very strongly acid; gradual wavy boundary.

BC—32 to 39 inches; 35 percent red (10R 4/8), 35 percent yellowish brown (10YR 5/8), and 30 percent light gray (10YR 7/1) clay loam; weak fine subangular blocky structure; friable; areas with gray colors are iron depletions and areas with brown and yellow colors are iron accumulations; very strongly acid; gradual wavy boundary.

C1—39 to 52 inches; multicolored fine sandy loam saprolite in shades of red, yellow, and gray; massive; very friable; very strongly acid; gradual wavy boundary.

C2—52 to 62 inches; multicolored gravelly sandy loam saprolite in shades of white, brown, yellow, and gray; massive; 15 percent, by volume, quartz pebbles; very strongly acid.

Range in Characteristics

Thickness of the solum: 39 to 60 inches

Depth to bedrock: More than 60 inches

Content and size of rock fragments: Less than 35 percent, by volume, throughout the profile; mostly quartz pebbles

Reaction: Extremely acid to strongly acid throughout the profile, except where the surface layer has been limed; in limed areas reaction is typically moderately acid or slightly acid in the upper part of the profile

A horizon:

Color—hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 1 to 4

Texture—sandy loam

Bt horizon:

Color—hue of 7.5YR to 5Y, value of 5 to 8, and chroma of 3 to 8

Texture—clay loam, sandy clay, or clay

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

BC horizon:

Color—hue of 7.5YR to 5Y, value of 5 to 8, and chroma of 3 to 8

Texture—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

C horizon:

Color—hue of 5YR to 5Y, value of 5 to 8, and chroma of 3 to 8

Texture—sandy loam, fine sandy loam, loam, or sandy clay loam

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Herndon Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Parent material: Residuum weathered from fine grained metamorphic rock

Landscape: Piedmont

Landform: Broad ridges

Landform position: Convex side slopes

Slope range: 2 to 10 percent

Taxonomic class: Fine, kaolinitic, thermic Typic Hapludults

Typical Pedon

Herndon loam, 2 to 6 percent slopes; about 5.3 miles west of Louisburg on North Carolina Highway 561, about 1.0 mile northwest on Secondary Road 1002, about 4.7 miles north on Secondary Road 1433, about 0.5 mile past the intersection of Secondary Roads 1433 and 1434, about 60 feet west of the road, in a cultivated field; Gold Sand USGS topographic quadrangle; lat. 36 degrees 12 minutes 56 seconds N. and long. 78 degrees 11 minutes 45 seconds W.

Ap—0 to 7 inches; dark yellowish brown (10YR 4/6) loam; moderate medium granular structure; friable; 5 percent, by volume, pebbles; neutral; abrupt smooth boundary.

Bt1—7 to 25 inches; brownish yellow (10YR 6/8) clay; common medium distinct strong brown (7.5YR 5/8) and few fine prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; few faint clay films on faces of ped; strongly acid; gradual wavy boundary.

Bt2—25 to 40 inches; brownish yellow (10YR 6/8) silty clay loam; common fine distinct strong brown (7.5YR 4/6) and common fine prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; few faint clay films on faces of ped; strongly acid; gradual wavy boundary.

BC—40 to 53 inches; brownish yellow (10YR 6/6) loam; many medium distinct strong brown (7.5YR

4/6) and common fine faint red (2.5YR 4/8)

mottles; weak coarse subangular blocky structure; friable; strongly acid; gradual wavy boundary.

C—53 to 62 inches; multicolored loam saprolite in shades of yellow, brown, and red; massive; friable; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches

Depth to bedrock: More than 60 inches

Content and size of rock fragments: Less than 20 percent, by volume, in the A horizon and less than 10 percent in the B and C horizons; mostly pebbles

Reaction: Very strongly acid to slightly acid in the A horizon and extremely acid to strongly acid in the B and C horizons

Ap horizon:

Color—hue of 7.5YR to 5Y, value of 3 to 6, and chroma of 2 to 8

Texture—loam

Bt horizon:

Color—hue of 5YR to 10YR, value of 4 to 7, and chroma of 4 to 8

Texture—silty clay loam, silty clay, or clay

Mottles—shades of brown, yellow, or red

BC horizon:

Color—hue of 5YR to 10YR, value of 4 to 7, and chroma of 4 to 8

Texture—coarse sandy loam, loam, clay loam, silt loam, or silty clay loam

Mottles—shades of brown, yellow, or red

C horizon:

Color—horizon is multicolored in shades of red, brown, yellow, or white

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

Montonia Series

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderate

Parent material: Residuum weathered from fine grained, high-grade metamorphic rock

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Convex side slopes

Slope range: 8 to 30 percent

Taxonomic class: Fine-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Montonia channery loam in an area of Georgeville-Montonia complex, 8 to 15 percent slopes, very stony; about 9.9 miles east on North Carolina Highway 56, about 0.9 mile north on a unpaved road, about 0.2 mile west on the road, about 0.7 mile northeast along the power line, 500 feet northwest of the power line, in the woods; Castalia USGS topographic quadrangle; lat. 36 degrees 07 minutes 02 seconds N. and long. 78 degrees 06 minutes 30 seconds W.

- A—0 to 7 inches; brown (7.5YR 4/4) channery loam; moderate medium granular structure; very friable; 20 percent, by volume, channers and 5 percent cobbles; moderately acid; clear wavy boundary.
- BA—7 to 11 inches; strong brown (7.5YR 5/6) channery loam; weak medium subangular blocky structure; friable; 15 percent, by volume, channers and 5 percent cobbles; moderately acid; clear wavy boundary.
- Bt—11 to 35 inches; yellowish red (5YR 4/6) clay loam; moderate medium subangular blocky structure; firm; common distinct red (2.5YR 4/6) clay films on faces of peds; 5 percent, by volume, weathered, very firm channers and 10 percent unweathered, hard channers; strongly acid; clear wavy boundary.
- Cr—35 to 42 inches; weathered, moderately fractured amphibolite that can be dug with difficulty with a spade.
- R—42 inches; unweathered, slightly fractured amphibolite.

Range in Characteristics

- Thickness of the solum:* 20 to 40 inches
- Depth to bedrock:* 20 to 40 inches to soft bedrock; 40 to 60 inches to hard bedrock
- Content and size of rock fragments:* 15 to 60 percent, by volume, in the A horizon, 5 to 35 percent in the Bt horizon, and 15 to 60 percent in the BC and C horizons; mostly channers, pebbles, and cobbles
- Reaction:* Very strongly acid to moderately acid throughout the profile, except where the surface layer has been limed
- A or Ap horizon:*
Color—hue of 5YR to 2.5Y, value of 4 or 5, and chroma of 2 to 8
Texture—loam
- BA horizon:*
Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 3 to 6
Texture—loam or silt loam

Bt horizon:

Color—hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8

Texture—loam, clay loam, or silty clay loam

Cr horizon:

Type of bedrock—weathered, slightly fractured to highly fractured, fine grained metamorphic rock that can be dug with difficulty with a spade

R horizon:

Type of bedrock—unweathered, slightly fractured to highly fractured, fine grained metamorphic rock

Pacolet Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Parent material: Residuum weathered from high-grade metamorphic or igneous rock

Landscape: Piedmont

Landform: Narrow ridges and hill slopes

Landform position: Convex side slopes

Slope range: 2 to 15 percent

Taxonomic class: Fine, kaolinitic, thermic Typic Kanhapludults

Typical Pedon

Pacolet clay loam, 6 to 10 percent slopes, eroded; about 9.7 miles west of Louisburg on North Carolina Highway 56 to Franklinton, about 5.6 miles south on U.S. Highway 1, about 0.5 mile west on a gravel road, 200 feet north of the road, in the woods; Grissom USGS topographic quadrangle; lat. 36 degrees 01 minute 30 seconds N. and long. 78 degrees 29 minutes 59 seconds W.

A—0 to 4 inches; dark brown (7.5YR 4/4) sandy loam; weak medium granular structure; friable; strongly acid; clear wavy boundary.

Bt1—4 to 17 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; few fine flakes of mica; very strongly acid; gradual wavy boundary.

Bt2—17 to 27 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; common fine flakes of mica; very strongly acid; gradual wavy boundary.

BC—27 to 37 inches; red (2.5YR) clay loam; weak medium subangular blocky structure; friable; few

distinct clay films on faces of peds; common fine flakes of mica; very strongly acid; gradual wavy boundary.

C1—37 to 52 inches; multicolored loam saprolite in shades of red, brown, and yellow; massive; friable; common fine flakes of mica; strongly acid; gradual wavy boundary.

C2—52 to 62 inches; multicolored sandy loam saprolite in shades of red, brown, and yellow; massive; friable; common fine flakes of mica; very strongly acid.

Range in Characteristics

Thickness of the solum: 18 to 30 inches

Depth to bedrock: More than 60 inches

Content and size of rock fragments: Less than 35 percent, by volume, in the A horizon and less than 15 percent in the B and C horizons; mostly pebbles

Reaction: Very strongly acid to slightly acid in the A horizon and very strongly acid to moderately acid throughout the rest of the profile

A horizon:

Color—hue of 5YR to 10YR, value of 3 to 5, and chroma of 1 to 6

Texture—sandy loam or clay loam

Bt horizon:

Color—hue of 10R or 2.5YR, value of 4 or 5, and chroma of 6 or 8

Texture—clay loam, sandy clay, or clay

Mottles—shades of red, yellow, or brown

BC horizon:

Color—hue of 10R to 5YR, value of 4 or 5, and chroma of 6 or 8

Texture—sandy loam, loam, sandy clay loam, or clay loam

Mottles—shades of red, yellow, or brown

C horizon:

Color—horizon has hue of 10R to 5YR, value of 4 or 5, and chroma of 6 or 8 or is multicolored in shades of red, brown, yellow, or white

Texture—loamy saprolite

Mottles—shades of red, yellow, or brown

Rains Series

Depth class: Very deep

Drainage class: Poorly drained

Permeability: Moderate

Parent material: Fluvial or marine sediments

Landscape: Coastal Plain

Landform: Marine terraces

Landform position: Planar to slightly concave slopes

Slope range: 0 to 2 percent

Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Typic Paleaquults

Typical Pedon

Rains loam in an area of Rains-Toisnot complex, 0 to 2 percent slopes; about 17.1 miles south of Louisburg on North Carolina Highway 39 to Pilot, about 0.5 mile south on Secondary Road 1746, about 575 feet east by northeast, in a mixed pine and hardwood forest; Bunn West USGS topographic quadrangle; lat. 35 degrees 52 minutes 44 seconds N. and long. 78 degrees 15 minutes 22 seconds W.

A1—0 to 4 inches; very dark gray (10YR 3/1) loam; moderate medium granular structure; very friable; very strongly acid; clear wavy boundary.

A2—4 to 7 inches; dark gray (10YR 4/1) loam; weak medium granular structure; very friable; very strongly acid; abrupt wavy boundary.

Eg—7 to 12 inches; white (N 8/0) sandy loam; weak fine granular structure; very friable; common medium distinct light gray (10YR 6/1) irregularly shaped iron depletions with clear boundaries in the matrix; very strongly acid; abrupt wavy boundary.

Btg1—12 to 20 inches; light gray (10YR 6/1) clay loam; weak medium subangular blocky structure; firm; common faint light brownish gray (10YR 6/2) clay films on faces of peds; common medium distinct light yellowish brown (10YR 6/4) and common medium distinct strong brown (7.5YR 5/8) irregularly shaped masses of iron accumulation with clear boundaries throughout; common fine lenses of gray fine sandy loam between peds; very strongly acid; gradual wavy boundary.

Btg2—20 to 38 inches; light brownish gray (2.5Y 6/2) clay loam; weak medium subangular blocky structure; firm; common faint light brownish gray (10YR 6/2) clay films on faces of peds; many medium faint light gray (10YR 6/1) irregularly shaped iron depletions with clear boundaries in the matrix; common medium distinct strong brown (7.5YR 5/8) and common fine prominent yellowish red (5YR 5/8) irregularly shaped masses of iron accumulation with clear boundaries throughout; common lenses of fine sandy loam between peds; very strongly acid; gradual wavy boundary.

Btg3—38 to 62 inches; 35 percent light gray (N 7/0), 35 percent white (N 8/0), and 30 percent light brownish gray (2.5Y 6/2) clay loam; weak medium subangular blocky structure; firm; common faint light brownish gray (10YR 6/2) clay films on faces of peds; common medium yellowish red (5YR 5/8)

and common fine yellowish brown (10YR 5/8) irregularly shaped masses of iron accumulation with clear boundaries throughout; common fine lenses of gray fine sandy loam and loamy fine sand between peds; very strongly acid; gradual wavy boundary.

Cg—62 to 80 inches; 40 percent light gray (N 7/0), 35 percent white (N 8/0), and 25 percent light brownish gray (2.5Y 6/2) fine sandy loam; massive; friable; common fine light yellowish brown (10YR 6/4) irregularly shaped masses of iron accumulation with clear boundaries throughout; common fine lenses of gray fine sand between peds; very strongly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches

Depth to bedrock: More than 60 inches

Content of rock fragments: None throughout the profile

Reaction: Extremely acid to slightly acid in the A and E horizons and extremely acid to strongly acid throughout the rest of the profile

A horizon:

Color—horizon has hue of 10YR or 2.5Y, value of 2 to 5, and chroma of 1 or 2 or is neutral in hue and has value of 2 to 5

Texture—loam

Redoximorphic features (if they occur)—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Eg horizon:

Color—horizon has hue of 10YR to 5Y or is neutral in hue, has value of 4 to 7, and has chroma of 0 to 2

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

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Btg horizon:

Color—horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2 or is neutral in hue and has value of 4 to 8

Texture—loam, sandy clay loam, or clay loam

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Cg horizon:

Color—horizon has hue of 10YR, value of 4 to 8, and chroma of 1 or 2 or is neutral in hue and has value of 4 to 8.

Texture—variable, ranging from sand to sandy clay, or stratified

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Rion Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Parent material: Residuum weathered from felsic crystalline rock

Landscape: Piedmont

Landform: Narrow ridges and hill slopes

Landform position: Convex side slopes

Slope range: 8 to 30 percent

Taxonomic class: Fine-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Rion sandy loam in an area of Rion-Wateree-Wedowee complex, 8 to 15 percent slopes; in Granville County, about 16.7 miles west of Louisburg on North Carolina Highway 56 to Wilton, about 8.0 miles northeast of Wilton on Secondary Road 1627, about 1,000 feet on Secondary Road 1627, about 300 feet south of the road, in the woods; Wilton USGS topographic quadrangle; lat. 36 degrees 09 minutes 26 seconds N. and long. 78 degrees 31 minutes 08 seconds W.

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) sandy loam; moderate fine granular structure; very friable; few medium and common fine roots; moderately acid; abrupt smooth boundary.

A2—5 to 8 inches; brown (10YR 4/3) sandy loam; moderate fine granular structure; common very fine and fine and few medium and coarse roots; moderately acid; clear smooth boundary.

E—8 to 16 inches; brownish yellow (10YR 6/6) sandy loam; moderate fine granular structure; very friable; common very fine and fine and few coarse roots; moderately acid; clear smooth boundary.

Bt—16 to 26 inches; yellowish brown (10YR 5/6) clay loam; very coarse subangular blocky structure; firm; common fine roots; few faint dark yellowish brown (10YR 4/6) clay films on faces of peds; few

fine flakes of mica; very strongly acid; gradual wavy boundary.

BC—26 to 34 inches; yellowish brown (10YR 5/6) sandy clay loam; common fine black, white, and yellow streaks; weak coarse subangular blocky structure; very friable; strongly acid; gradual wavy boundary.

C—34 to 65 inches; multicolored sandy clay loam saprolite in shades of brown, yellow, and white; massive; very friable; very strongly acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches

Depth to bedrock: More than 60 inches

Content and size of rock fragments: Less than 35 percent, by volume, throughout the profile and commonly less than 10 percent; mostly pebbles

Reaction: Very strongly acid to slightly acid throughout the profile, except where the surface layer has been limed

A horizon:

Color—hue of 5YR to 2.5Y, value of 4 to 6, and chroma of 2 to 6

Texture—sandy loam

E horizon:

Color—hue of 5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 8

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

Bt horizon:

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8

Texture—sandy loam, fine sandy loam, sandy clay loam, or clay loam

Mottles or streaks—shades of brown, red, yellow, or gray

BC horizon:

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8

Texture—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam

Mottles or streaks—shades of red, brown, yellow, gray, white, or black

C horizon:

Color—horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8 or is multicolored in shades of red, brown, yellow, or white

Texture—loamy sand, coarse sandy loam, sandy loam, fine sandy loam, or sandy clay loam saprolite

Mottles or streaks (if they occur)—shades of red, brown, yellow, white, or gray

Riverview Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Parent material: Alluvium

Landscape: Piedmont and Coastal Plain

Landform: Flood plains

Landform position: Slightly higher slopes

Slope range: 0 to 3 percent

Taxonomic class: Fine-loamy, mixed, active, thermic Fluventic Dystrochrepts

Typical Pedon

Riverview loam in an area of Riverview and Buncombe soils, 0 to 3 percent slopes, frequently flooded; about 11.2 miles east of Louisburg on North Carolina Highway 561, about 1.5 miles southeast on Secondary Road 1451, about 1,000 feet southeast of the road, on the flood plain; Centerville USGS topographic quadrangle; lat. 36 degree 09 minutes 50 seconds N. and long. 78 degrees 07 minutes 23 seconds W.

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) loam; moderate medium granular structure; very friable; slightly acid; clear smooth boundary.

Bw1—8 to 20 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; few very fine flakes of mica; moderately acid; clear smooth boundary

Bw2—20 to 48 inches; yellowish brown (10YR 5/8) loam; weak medium subangular blocky structure; friable; common very fine flakes of mica; moderately acid; clear smooth boundary.

Bw3—48 to 54 inches; yellowish brown (10YR 5/8) loam; weak medium subangular blocky structure; friable; common medium distinct light yellowish brown (10YR 6/4) irregularly shaped masses of iron accumulation with clear boundaries throughout; common very fine flakes of mica; moderately acid; clear smooth boundary.

BC—54 to 62 inches; yellowish brown (10YR 5/8) loam; weak medium subangular blocky structure; friable; common medium distinct light gray (10YR 7/2) irregularly shaped iron depletions with clear boundaries throughout; common very fine flakes of mica; moderately acid.

Range in Characteristics

Thickness of the solum: 24 to 60 inches

Depth to bedrock: More than 60 inches

Content of mica flakes: None to common throughout the profile

Content of rock fragments: None throughout the profile

Reaction: Very strongly acid to slightly acid in the A horizon and very strongly acid to moderately acid in the B and C horizons

A horizon:

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 6

Texture—loam

Bw horizon:

Color—hue of 7.5YR, value of 4 to 6, and chroma of 3 to 8 or hue of 10YR, value of 3 to 5, and chroma of 3 to 8

Texture—fine sandy loam, loam, sandy clay loam, clay loam, silt loam, or silty clay loam

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

BC horizon:

Color—hue of 7.5YR, value of 4 to 6, chroma of 3 to 8 or hue of 10YR, value of 3 to 5, and chroma of 3 to 8

Texture—sandy loam, fine sandy loam, loam, or sandy clay loam

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Roanoke Series

Depth class: Very deep

Drainage class: Poorly drained

Permeability: Very slow and slow

Parent material: Clayey alluvial or marine sediments

Landscape: Piedmont and Coastal Plain

Landform: Flood plains and stream terraces

Landform position: Planar to slightly concave slopes

Slope range: 0 to 2 percent

Taxonomic class: Fine, mixed, semiactive, thermic
Typic Endoaquults

Typical Pedon

Roanoke silt loam in an area of Roanoke-Wahee complex, 0 to 3 percent slopes, occasionally flooded; about 9.6 miles south of Louisburg on North Carolina Highway 39, about 2.1 miles on North Carolina Highway 98 southeast of Bunn, 0.5 mile northeast on Secondary Road 1611 across the Tar River, about 500 feet southeast of the road, in a pasture; Bunn East USGS topographic quadrangle; lat. 35 degrees 56 minutes 23 seconds N. and long. 78 degrees 12 minutes 03 seconds W.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; weak coarse subangular and moderate medium granular structure; friable; neutral; clear smooth boundary.

Btg1—5 to 16 inches; gray (10YR 5/1) silty clay loam; weak coarse angular blocky structure; friable; few faint clay films on faces of peds; very strongly acid; clear smooth boundary.

Btg2—16 to 38 inches; dark gray (10YR 4/1) clay; weak medium angular blocky structure; very firm; common faint light brownish gray (10YR 6/2) clay films on faces of peds and in pores; many coarse distinct light gray (10YR 6/1) iron depletions with clear boundaries throughout; common fine prominent strong brown (7.5YR 5/8) irregularly shaped masses of iron accumulation with clear boundaries in the matrix; strongly acid; gradual smooth boundary.

Btg3—38 to 45 inches; dark gray (10YR 4/1) clay; weak medium angular blocky structure; very firm; few faint light brownish gray (10YR 6/2) clay films on faces of peds; many distinct gray (10YR 5/1) iron depletions with clear boundaries throughout; few fine prominent strong brown (7.5YR 5/6) irregularly shaped masses of iron accumulation with clear boundaries in the matrix; strongly acid; clear smooth boundary.

Btg4—45 to 51 inches; light brownish gray (10YR 6/2) clay; weak medium angular blocky structure; firm; few faint light brownish gray (10YR 6/2) clay films on faces of peds; common medium distinct light gray (10YR 7/1) iron depletions with clear boundaries throughout; common fine prominent yellowish brown (10YR 5/8) irregularly shaped masses of iron accumulation with clear boundaries throughout; moderately acid; abrupt smooth boundary.

Cg—51 to 62 inches; 45 percent dark greenish gray (5BG 4/1), 35 percent gray (5Y 6/1 and N 6/0), and 20 percent greenish gray (5GY 5/1) sandy clay loam; massive; firm; few fine flakes of mica; few lenses of gray clay between peds; slightly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches

Depth to bedrock: More than 60 inches

Content of mica flakes: None to common throughout the profile

Content and size of rock fragments: Less than 10 percent, by volume, in the A and B horizons and less than 50 percent in the C horizon; mostly pebbles

Reaction: Extremely acid to strongly acid in the A and

B horizons, except where the surface layer has been limed, and extremely acid to slightly acid in the C horizon

A horizon:

Color—horizon has hue of 10YR to 5Y, value of 2 to 6, and chroma of 1 or 2 or is neutral in hue and has value of 2 to 6

Texture—silt loam

Redoximorphic features (if they occur)—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Btg horizon:

Color—horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2 or is neutral in hue and has value of 4 to 7

Texture—clay loam, silty clay loam, silty clay, or clay

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Cg horizon:

Color—variable

Texture—stratified; ranging from sand to clay

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Saw Series

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderate

Parent material: Residuum weathered from coarse grained felsic crystalline igneous rock

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Convex side slopes

Slope range: 2 to 8 percent

Taxonomic class: Fine, kaolinitic, thermic Typic Kanhapludults

Typical Pedon

Saw sandy loam in an area of Wake-Saw-Wedowee complex, 2 to 8 percent slopes, rocky; about 5.3 miles east of Louisburg on North Carolina Highway 56, about 160 feet south of the highway, in a cultivated field; Justice USGS topographic quadrangle; lat. 36 degrees 04 minutes 31 seconds N. and long. 78 degrees 13 minutes 08 seconds W.

Ap—0 to 10 inches; brown (10YR 5/3) sandy loam; weak medium granular structure; very friable; slightly acid; clear smooth boundary.

E—10 to 14 inches; light yellowish brown (10YR 6/4) sandy loam; weak medium granular structure; very friable; moderately acid; clear smooth boundary.

Bt1—14 to 21 inches; reddish yellow (7.5YR 6/6) clay loam; common medium faint strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; few distinct strong brown (7.5YR 4/6) clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt2—21 to 25 inches; strong brown (7.5YR 5/6) clay; common medium distinct yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; firm; common distinct strong brown (7.5YR 4/6) clay films on faces of peds; very strongly acid; gradual wavy boundary.

BC—25 to 30 inches; yellowish red (5YR 5/8) clay loam; common coarse distinct strong brown (7.5YR 5/6) and common fine prominent brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

C—30 to 34 inches; multicolored sandy loam saprolite in shades of red, brown, yellow, and white; massive; friable; very strongly acid.

R—34 inches; unweathered, slightly fractured porphyritic granite.

Range in Characteristics

Thickness of the solum: 19 to 33 inches

Depth to bedrock: 20 to 40 inches to hard bedrock

Content and size of rock fragments: Less than 35 percent, by volume, in the A horizon and less than 15 percent in the E, B, and C horizons; mostly quartz pebbles

Reaction: Very strongly acid to moderately acid throughout the profile, except where the surface layer has been limed

Ap horizon:

Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 2 to 6

Texture—sandy loam

E horizon:

Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 3 to 8

Texture—sandy loam

Bt horizon:

Color—hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 6 or 8 or hue of 10YR, value of 5 or 6, and chroma of 6 or 8

Texture—clay loam, sandy clay, or clay
Mottles—shades of red, brown, or yellow

BC horizon:

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 6 or 8
Texture—sandy loam, sandy clay loam, or clay loam
Mottles—shades of red, brown, or yellow

C horizon:

Color—multicolored in shades of red, brown, yellow, white, gray, or pink
Texture—sandy loam

R horizon:

Type of bedrock—multicolored hard unweathered granite or gneiss

State Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy alluvium
Landscape: Piedmont and Coastal Plain
Landform: Stream terraces
Landform position: Planar slopes
Slope range: 0 to 3 percent
Taxonomic class: Fine-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

State loam, 0 to 3 percent slopes, rarely flooded; about 2.1 miles south of Louisburg on North Carolina Highway 39, about 2.6 miles southeast on Secondary Road 1605, about 0.25 mile south and 0.6 mile east on a private road, 500 feet south of the road, in a field; Justice USGS topographic quadrangle; lat. 36 degrees 01 minute 47 seconds N. and long. 78 degrees 14 minutes 54 seconds W.

A—0 to 10 inches; brown (10YR 4/3) loam; moderate fine granular structure; very friable; neutral; abrupt smooth boundary.

Bt1—10 to 36 inches; strong brown (7.5YR 5/8) clay loam; moderate medium subangular blocky structure; friable; common faint dark yellowish brown (10YR 4/6) clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt2—36 to 48 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few faint dark yellowish brown (10YR 4/6) clay films on faces of peds; strongly acid; clear smooth boundary.

C—48 to 62 inches; light yellowish brown (10YR 6/4) loamy fine sand that has thin strata of gravelly loam; massive parting to single grain; very friable; common faint brownish yellow (10YR 6/6) irregularly shaped masses of iron accumulation with clear boundaries throughout; few fine flakes of mica; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches

Depth to bedrock: More than 60 inches

Content of mica flakes: None to common throughout the profile

Content and size of rock fragments: Less than 2 percent, by volume, in the solum and less than 25 percent in the C horizon; mostly pebbles

Reaction: Extremely acid to strongly acid in the A horizon and the upper part of the B horizon, except where the surface layer has been limed, and extremely acid to slightly acid in the lower part of the B horizon and in the C horizon

A horizon:

Color—hue of 7.5YR to 2.5Y, value of 3 to 6, and chroma of 2 to 6
Texture—loam

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—loam, sandy clay loam, or clay loam

C horizon:

Color—horizon has hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 2 to 8 or does not have a dominant color and is in shades of red, brown, or yellow
Texture—sandy loam, fine sandy loam, very fine sandy loam, or sandy clay loam
Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Tatum Series

Depth class: Deep

Drainage class: Well drained

Permeability: Moderate

Parent material: Residuum weathered from fine grained metamorphic rock

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Convex side slopes

Slope range: 10 to 30 percent

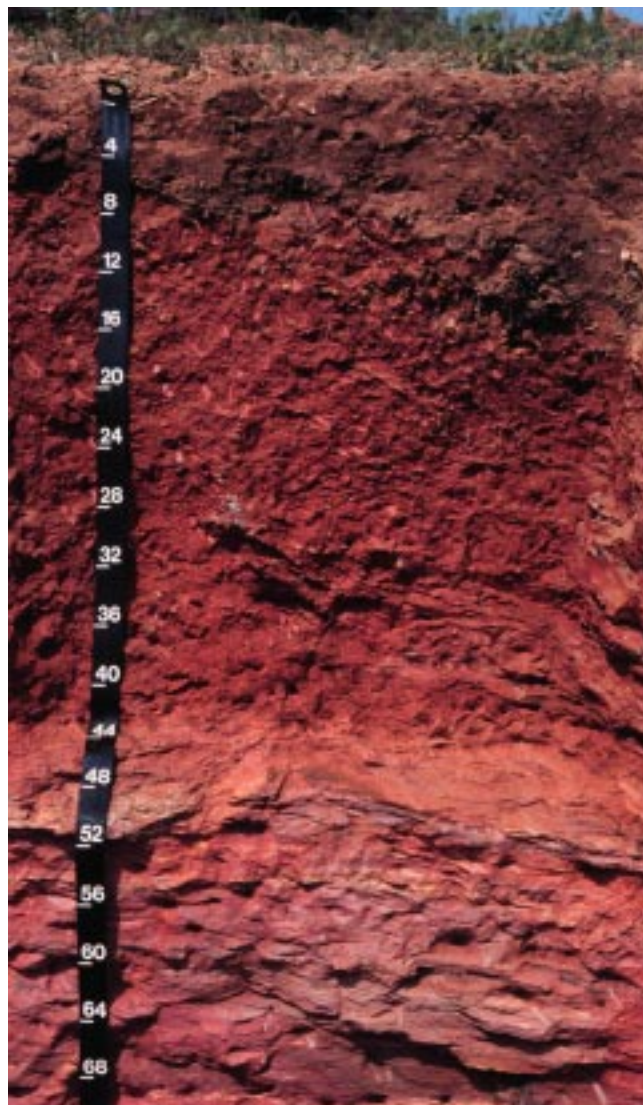


Figure 11.—Profile of a Tatum soil. The Tatum soils typically have soft bedrock at a depth of 40 to 60 inches. Depth is marked in inches.

Taxonomic class: Fine, mixed, semiactive, thermic
Typic Hapludults

Typical Pedon

Tatum loam, 10 to 15 percent slopes; about 4.5 miles east of Louisburg on North Carolina Highway 581, about 3.5 miles south on Secondary Road 1001, about 3.5 miles southeast on Secondary Road 1611, about 150 feet east of the road, in a wooded area; Bunn East USGS topographic quadrangle; lat. 35 degrees 58 minutes 30 seconds N. and long. 78 degrees 12 minutes 39 seconds W.

- Ap—0 to 8 inches; brown (7.5YR 4/4) loam; weak medium granular structure; very friable; very strongly acid; abrupt smooth boundary.
- Bt1—8 to 22 inches; red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; few distinct yellowish red (5YR 4/6) clay films on faces of peds; 10 percent, by volume, quartz pebbles; very strongly acid; gradual smooth boundary.
- Bt2—22 to 35 inches; red (2.5YR 4/6) clay loam; weak medium subangular blocky structure; common distinct yellowish red (5YR 4/6) clay films on faces of peds; 10 percent, by volume, quartz pebbles; very strongly acid; gradual smooth boundary.
- C—35 to 50 inches; multicolored loam saprolite in shades of red, brown, and yellow; massive; 20 percent, by volume, quartz pebbles; very strongly acid; irregular wavy boundary.
- Cr—50 to 62 inches; weathered, highly fractured slate; abrupt smooth boundary.
- R—62 inches; unweathered, moderately fractured slate.

Range in Characteristics

- Thickness of the solum:* 30 to 60 inches
- Depth to bedrock:* 40 to 60 inches to soft bedrock; more than 60 inches to hard bedrock (fig. 11)
- Content and size of rock fragments:* Less than 40 percent, by volume, throughout the profile; mostly pebbles
- Reaction:* Very strongly acid or strongly acid throughout the profile, except where the surface layer has been limed

Ap horizon:

- Color—hue of 7.5YR to 10YR, value of 4 or 5, and chroma of 2 to 8
- Texture—loam

Bt horizon:

- Color—hue of 10R or 2.5YR, value of 4 or 5, and chroma of 6 or 8
- Texture—clay loam, silty clay loam, silty clay, or clay

C horizon:

- Color—hue of 10R to 5YR, value of 4 to 6, and chroma of 4 to 8
- Texture—loam, clay loam, silt loam, silty clay loam, silty clay, or clay

Cr horizon:

- Type of bedrock—weathered, slightly fractured to highly fractured fine grained metamorphic rock that can be dug with moderate difficulty with a spade

R horizon:

Type of bedrock—unweathered, fine grained metamorphic rock

Toisnot Series

Depth class: Moderately deep to root-limiting layer

Drainage class: Poorly drained

Permeability: Slow

Parent material: Fluvial or marine sediments

Landscape: Coastal Plain

Landform: Depressions, head of drainageways, and the outer edge of stream terraces

Landform position: Planar to slightly concave slopes

Slope range: 0 to 2 percent

Taxonomic class: Coarse-loamy, siliceous, semiactive, thermic Typic Fragiaquults

Typical Pedon

Toisnot sandy loam in an area of Rains-Toisnot complex, 0 to 2 percent slopes; about 17.1 miles south of Louisburg on North Carolina Highway 39 to Pilot, about 1.2 miles south on Secondary Road 1746, about 250 feet east-northeast, in a mixed hardwood and pine forest; Zebulon USGS topographic quadrangle; lat. 35 degrees 52 minutes 46 seconds N. and long. 78 degrees 15 minutes 24 seconds W.

A—0 to 5 inches; very dark gray (10YR 3/1) sandy loam; weak medium granular structure; very friable; many medium and coarse roots; very strongly acid; clear wavy boundary.

Eg—5 to 10 inches; gray (10YR 5/1) loamy fine sand; weak fine granular structure; very friable; few medium and coarse roots; common medium distinct light gray (10YR 6/1) irregularly shaped clay depletions with clear boundaries in the matrix; very strongly acid; clear wavy boundary.

Bt/Eg1—10 to 15 inches; 70 percent dark grayish brown (10YR 4/2) sandy loam (Bt part) and 30 percent light gray (10YR 7/1) sandy loam (Eg part); weak medium subangular blocky structure; friable; few medium and coarse roots; very strongly acid; clear wavy boundary.

Bt/Eg2—15 to 25 inches; 60 percent light gray (10YR 7/2) sandy loam (Bt part) and 40 percent white (10YR 8/1) sandy loam (Eg part); weak medium subangular blocky structure; friable (Bt part); very friable, slightly brittle (Eg part); few medium and coarse roots; common medium distinct irregularly shaped light yellowish brown (10YR 6/4) iron depletions; many medium distinct yellowish brown (10YR 5/8) irregularly shaped masses of iron

accumulation with clear boundaries in the matrix; very strongly acid; clear wavy boundary.

Egx1—25 to 37 inches; white (N 8/0) fine sandy loam; massive; moderately hard (very hard in place), brittle; common faint irregularly shaped light gray (10YR 7/2) iron depletions with clear boundaries throughout; common medium distinct light yellowish brown (10YR 6/4) irregularly shaped masses of iron accumulation with clear boundaries in the matrix; very strongly acid; clear wavy boundary.

Egx2—37 to 46 inches; white (N 8/0) fine sandy loam; massive; moderately hard (extremely hard in place), very brittle; very strongly acid; clear wavy boundary.

2Cg—46 to 80 inches; white (10YR 8/1) sandy clay; massive; firm; many coarse distinct irregularly shaped light gray (10YR 7/1) iron depletions with clear boundaries throughout; common medium distinct light yellowish brown (2.5Y 6/4) irregularly shaped masses of iron accumulation with clear boundaries in the matrix; very strongly acid.

Range in Characteristics

Thickness of the solum: More than 40 inches

Depth to fragipan: 10 to 45 inches

Depth to bedrock: More than 60 inches

Content and size of rock fragments: Less than 5 percent in the A and B horizons and less than 35 percent in the C horizon; mostly pebbles

Reaction: Extremely acid to strongly acid throughout the profile, except where the surface layer has been limed

A horizon:

Color—horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2 or is neutral in hue and has value of 2 or 3

Texture—sandy loam

Redoximorphic features (if they occur)—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Eg horizon:

Color—horizon has hue of 10YR to 2.5Y, value of 5 to 7, and chroma of 1 or 2 or is neutral in hue and has value of 6 or 7

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

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Bt/E horizon:

Color—hue of 10YR, value of 4 to 7, and chroma of 1 or 2

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

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Egx horizon:

Color—horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2 or is neutral in hue and has value of 6 to 8

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

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

2Cg horizon:

Color—horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2 or is neutral in hue and has value of 6 to 8

Texture—variable, commonly sandy loam, loam, sandy clay loam, clay loam, or sandy clay, and may be stratified, including gravelly layers

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Udorthents

Depth class: Deep and very deep

Drainage class: Well drained and moderately well drained

Permeability: Moderate to slow

Parent material: Loamy fill material

Landscape: Piedmont and Coastal Plain

Landform: Mostly uplands and terraces where the natural soil has been excavated or depressions that have been covered by earthy fill material

Landform position: Variable; commonly convex or concave side slopes

Slope range: 2 to 10 percent

Classification: Udorthents

Typical Pedon

A typical pedon is not given due to the variable nature of the soil.

Range in Characteristics

Thickness of the solum: 30 to more than 60 inches

Depth to bedrock: Excavated areas—bedrock

commonly exposed at the soil surface; fill areas—40 to more than 60 inches

Content and size of rock fragments: Variable, commonly 15 to 50 percent, by volume; ranging from gravel to stones

Reaction: Extremely acid to moderately acid throughout the profile, except where the surface layer has been limed

Fill areas:

Color—hue of 2.5YR to 10YR, value of 4 to 7, and chroma of 2 to 8

Texture (fine-earth fraction)—variable, commonly loamy

Excavated areas:

Color—hue of 2.5YR to 5Y, value of 4 to 7, and chroma of 2 to 8

Texture (fine-earth fraction)—variable, commonly loamy

Vance Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Slow

Parent material: Residuum weathered from felsic crystalline rock

Landscape: Piedmont

Landform: Knolls on broad ridges

Landform position: Convex side slopes

Slope range: 2 to 10 percent

Taxonomic class: Fine, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Vance sandy loam, 2 to 6 percent slopes (fig. 12); about 7.1 miles east of Louisburg on North Carolina Highway 581, about 400 feet south of the road, in a field north of a cemetery; Justice USGS topographic quadrangle; lat. 36 degrees 03 minutes 27 seconds N. and long. 78 degrees 10 minutes 21 seconds W.

Ap—0 to 6 inches; brown (10YR 5/3) sandy loam; weak medium granular structure; very friable; slightly acid; abrupt smooth boundary.

Bt1—6 to 11 inches; brownish yellow (10YR 6/8) clay; weak medium subangular blocky structure; firm; strongly acid; clear smooth boundary.

Bt2—11 to 22 inches; strong brown (7.5YR 5/6) clay; weak medium subangular blocky structure; firm; very strongly acid; gradual wavy boundary.

Bt3—22 to 27 inches; strong brown (7.5YR 5/6) clay; common medium prominent red (10R 4/8) and common fine distinct reddish yellow (7.5YR 6/8)



Figure 12.—Typical pedon of Vance sandy loam. The clayey Vance soils have a solum that is 24 to 40 inches thick. Depth is marked in inches.

- mottles; weak medium subangular blocky structure; very firm; 5 percent, by volume, pebbles; very strongly acid; gradual wavy boundary.
- BC—27 to 36 inches; strong brown (7.5YR 5/6) clay loam; many coarse distinct reddish yellow (7.5YR 6/6) and common medium distinct red (10R 4/8) mottles; weak fine subangular blocky structure; friable; very strongly acid; gradual wavy boundary.
- C1—36 to 50 inches; red (2.5YR 4/8) sandy loam; few fine distinct strong brown (7.5YR 5/6) mottles; massive; friable; very strongly acid; clear wavy boundary.
- C2—50 to 62 inches; multicolored clay loam saprolite in shades of red, brown, and yellow; massive; friable; very strongly acid.

Range in Characteristics

Thickness of the solum: 24 to 40 inches

Depth to bedrock: More than 60 inches

Content and size of rock fragments: Less than 35 percent, by volume, in the A horizon and less than 10 percent in the B horizon; mostly pebbles

Reaction: Moderately acid to very strongly acid in the A horizon, except where the surface layer has been limed, and strongly acid or very strongly acid in the B and C horizons

Ap horizon:

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

Texture—sandy loam

Bt horizon:

Color—hue of 5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8

Texture—clay loam, sandy clay, or clay

Mottles—shades of red, brown, or yellow

BC horizon:

Color—hue of 5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8

Texture—loam, sandy clay loam, clay loam, sandy clay, or clay

Mottles—shades of red, brown, or yellow

C horizon:

Color—horizon is multicolored in shades of red, brown, yellow, or white

Texture—variable; commonly sandy loam, loam, sandy clay loam, or clay loam

Varina Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate in the upper part of the B horizon and slow in the lower part of the B horizon

Parent material: Marine sediments over residuum weathered from felsic crystalline rock

Landscape: Coastal Plain

Landform: Broad ridges

Landform position: Convex side slopes

Slope range: 2 to 10 percent

Taxonomic class: Fine, kaolinitic, thermic Plinthic Paleudults

Typical Pedon

Varina loamy sand, 2 to 6 percent slopes; about 13.4 miles south of Louisburg on North Carolina Highway 39, about 200 feet west of the road, in a cultivated field; Bunn West USGS topographic quadrangle; lat. 35

degrees 53 minutes 48 seconds N. and long. 78 degrees 16 minutes 07 seconds W.

Ap—0 to 10 inches; brown (10YR 5/3) loamy sand; weak medium granular structure; very friable; 5 percent, by volume, ironstone and 5 percent quartz pebbles; slightly acid; abrupt smooth boundary.

E—10 to 14 inches; light yellowish brown (10YR 6/4) sandy loam; weak medium granular structure; very friable; 5 percent, by volume, ironstone and 5 percent quartz pebbles; strongly acid; clear smooth boundary.

Bt1—14 to 21 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; common faint yellowish brown (10YR 5/6) clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—21 to 30 inches; yellowish brown (10YR 5/8) clay; common coarse distinct light yellowish brown (10YR 6/4), common medium distinct strong brown (7.5YR 5/6), and few medium prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; firm, red mottles are slightly brittle; common faint yellowish brown (10YR 5/6) clay films on faces of peds; 2 percent, by volume, plinthite; very strongly acid; gradual wavy boundary.

Bt3—30 to 42 inches; yellowish brown (10YR 5/8) sandy clay; common fine distinct very pale brown (10YR 7/3) and common medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm, red mottles are slightly brittle; common faint yellowish brown (10YR 5/6) clay films on faces of peds; 2 percent, by volume, plinthite; extremely acid; gradual wavy boundary.

Btv1—42 to 48 inches; brownish yellow (10YR 6/8) sandy clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; common medium prominent white (10YR 8/1) iron depletions with clear boundaries throughout; common dark yellowish brown (10YR 4/6) masses of iron accumulation with clear boundaries in the matrix; 5 percent, by volume, plinthite; extremely acid; gradual wavy boundary.

Btv2—48 to 62 inches; reticulate pattern of 35 percent yellow (10YR 7/8), 35 percent white (10YR 8/1), and 30 percent dark yellowish brown (10YR 4/6) sandy clay; weak medium subangular blocky structure; firm; areas with white colors are iron depletions and areas with yellow and brown colors are iron accumulations; 10 percent, by volume, plinthite and 3 percent quartz pebbles; extremely acid; clear smooth boundary.

2BC—62 to 80 inches; 40 percent yellow (10YR 7/8), 30 percent white (10YR 8/1), and 30 percent dark yellowish brown (10YR 4/6) sandy clay; weak coarse subangular blocky structure; firm; areas with white colors are iron depletions and areas with yellow and brown colors are iron accumulations; 3 percent, by volume, quartz pebbles; extremely acid.

Range in Characteristics

Thickness of the solum: 60 to more than 120 inches

Depth to bedrock: More than 60 inches

Content of plinthite: 10 to 35 percent in the lower part of the B horizon

Content and size of rock fragments: Less than 30 percent, by volume, in the A horizon and the upper part of the B horizon and less than 15 percent in the lower part of the B horizon; mostly quartz or ironstone pebbles

Reaction: Strongly acid or very strongly acid throughout the profile, except where the surface layer has been limed

Ap horizon:

Color—hue of 10YR to 2.5Y, value of 4 to 7, and chroma of 1 to 8

Texture—loamy sand or gravelly sandy loam

E horizon:

Color—hue of 10YR to 2.5Y, value of 4 to 7, and chroma of 1 to 8

Texture—loamy sand or sandy loam

Bt horizon:

Color—hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 4 to 8

Texture—clay loam, sandy clay, or clay

Mottles—shades of red, brown, yellow, gray, or white (fig. 13)

Btv horizon:

Color—hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 4 to 8

Texture—clay loam, sandy clay, or clay

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of yellow, brown, or red

Wahee Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Permeability: Slow

Parent material: Clayey marine or fluvial sediments

Landscape: Coastal Plain

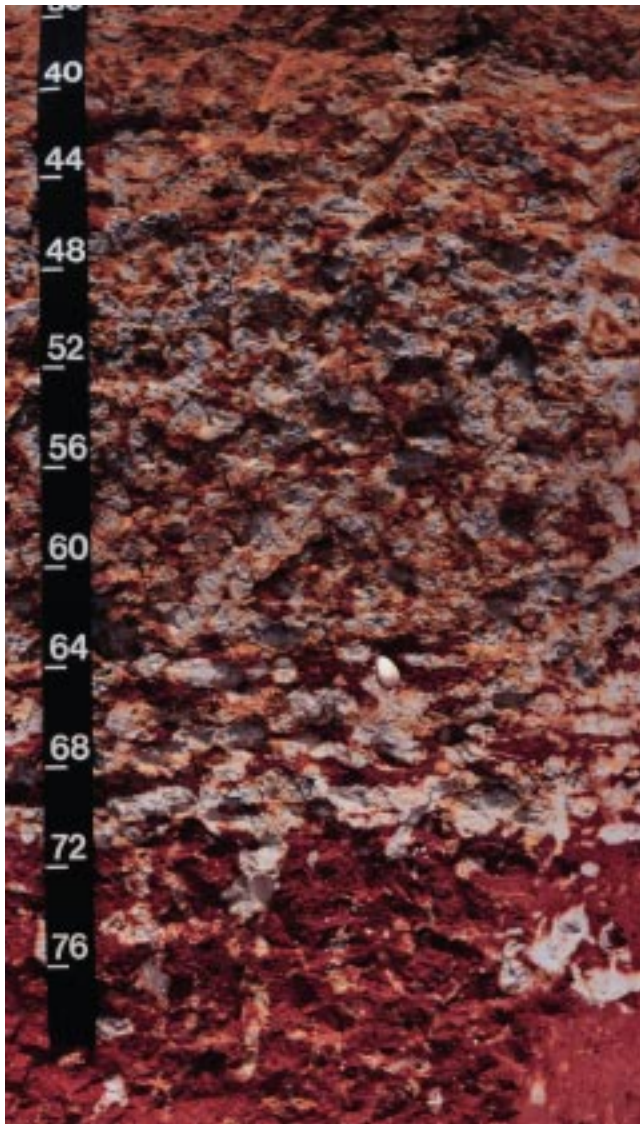


Figure 13.—Profile of Varina loamy sand. Reticulate mottling occurs in the subsoil. Depth is marked in inches.

Landform: Marine terraces and large stream terraces

Landform position: Planar to slightly concave slopes

Slope range: 0 to 3 percent

Taxonomic class: Fine, mixed, semiactive, thermic

Aeric Endoaquults

Typical Pedon

Wahee silt loam in an area of Roanoke-Wahee complex, 0 to 3 percent slopes, occasionally flooded; about 2.9 miles west of Louisburg on Secondary Road 1211, about 0.8 mile north on Secondary Road 1233, about 1,000 feet north on a farm road in a field, 200 feet west of the road, in the woods; Ingleside USGS topographic quadrangle; lat. 36 degrees 07 minutes 58

seconds N. and long. 78 degrees 20 minutes 53 seconds W.

A—0 to 4 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; very strongly acid; clear smooth boundary.

E—4 to 11 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak fine subangular blocky structure; friable; common medium faint very pale brown (10YR 7/3) irregularly shaped iron depletions with clear boundaries in the matrix; very strongly acid; clear smooth boundary.

Bt—11 to 17 inches; light yellowish brown (10YR 6/4) clay loam; moderate medium subangular blocky structure; firm; common distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; common medium faint white (10YR 8/2) irregularly shaped iron depletions with clear boundaries throughout; few fine distinct brownish yellow (10YR 6/6) irregularly shaped masses of iron accumulation with clear boundaries in the matrix; strongly acid; clear wavy boundary.

Btg1—17 to 33 inches; light brownish gray (10YR 6/2) clay; moderate medium subangular blocky structure; firm; common distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; common medium faint pale brown (10YR 6/3) and common medium distinct yellowish red (5YR 5/6) irregularly shaped masses of iron accumulation with clear boundaries in the matrix; strongly acid; clear wavy boundary.

Btg2—33 to 40 inches; light gray (2.5Y 7/2) clay loam; moderate medium subangular blocky structure; firm; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium faint yellowish brown (2.5Y 6/4) irregularly shaped masses of iron accumulation with clear boundaries in the matrix; very strongly acid; clear wavy boundary.

Btg3—40 to 49 inches; light gray (2.5Y 7/2) clay loam; weak medium subangular blocky structure; firm; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium faint white (2.5Y 8/2) irregularly shaped iron depletions with clear boundaries throughout; very strongly acid; gradual wavy boundary.

Btg4—49 to 62 inches; light brownish gray (2.5Y 6/2) clay; weak medium subangular blocky structure; firm; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium faint white (2.5Y 8/0) irregularly shaped iron depletions with clear boundaries throughout; common medium distinct brownish yellow (10YR 6/6) masses of iron accumulation with clear boundaries in the matrix; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches

Depth to bedrock: More than 60 inches

Reaction: Very strongly acid to moderately acid in the A horizon, except where the surface layer has been limed, and extremely acid to strongly acid throughout the rest of the profile

A horizon:

Color—horizon has hue of 10YR or 2.5Y, value of 2 to 5, and chroma of 1 to 3 or is neutral in hue and has value of 2 to 5

Texture—silt loam

E horizon:

Color—hue of 10YR to 5Y, value of 5 to 7, and chroma of 2 to 4

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

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of red, brown, or yellow

Bt horizon:

Color—hue of 10YR to 5Y, value of 5 to 7, and chroma of 3 to 8

Texture—clay loam or clay

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of red, brown, or yellow

Btg horizon:

Color—horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2 or is neutral in hue and has value of 4 to 7

Texture—clay loam or clay

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of red, brown, or yellow

Wake Series

Depth class: Shallow

Drainage class: Excessively drained

Permeability: Rapid

Parent material: Residuum weathered from coarse grained felsic crystalline rock

Landscape: Piedmont

Landform: Narrow ridges, knolls, and hill slopes

Landform position: Convex side slopes

Slope range: 2 to 30 percent

Taxonomic class: Mixed, thermic Lithic Udipsamments

Typical Pedon

Wake gravelly loamy coarse sand in an area of Wake-Saw-Wedowee complex, 2 to 8 percent slopes, rocky; about 9.5 miles east of Louisburg on North Carolina Highway 56, about 3.0 miles north on Secondary Road 1468, about 0.3 mile east on Secondary Road 1425, about 0.4 mile south on a private farm road, 250 feet west of the road; Gold Sand USGS topographic quadrangle; lat. 36 degrees 07 minutes 41 seconds N. and long. 78 degrees 08 minutes 42 seconds W.

Ap—0 to 7 inches; yellowish brown (10YR 5/4) gravelly loamy coarse sand; weak medium granular structure; very friable; 20 percent, by volume, quartz and feldspar pebbles; moderately acid; abrupt smooth boundary.

C—7 to 11 inches; reddish yellow (7.5YR 6/6) gravelly loamy sand; single grain; loose; 15 percent, by volume, quartz and feldspar pebbles; slightly acid; clear wavy boundary.

Cr—11 to 16 inches; weathered, moderately fractured porphyritic granite; abrupt wavy boundary.

R—16 inches; unweathered, slightly fractured porphyritic granite.

Range in Characteristics

Thickness of the solum: 8 to 20 inches

Depth to bedrock: 8 to 20 inches to hard bedrock

Content and size of rock fragments: Less than 35 percent, by volume, throughout the profile; mostly pebbles

Reaction: Very strongly acid to moderately acid throughout the profile, except where the surface layer has been limed

A horizon:

Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 4

Texture—gravelly loamy coarse sand

C horizon:

Color—hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 4 to 8

Texture—gravelly loamy coarse sand or loamy sand

Cr horizon:

Type of bedrock—weathered, slightly fractured to highly fractured felsic crystalline coarse grained rock that can be dug with difficulty with a spade

R horizon:

Type of bedrock—unweathered, slightly fractured to highly fractured felsic crystalline coarse grained rock

Wateree Series

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderately rapid

Parent material: Residuum weathered from felsic crystalline rock, commonly granite and gneiss

Landscape: Piedmont

Landform: Narrow ridges and hill slopes

Landform position: Convex side slopes

Slope range: 8 to 30 percent

Taxonomic class: Coarse-loamy, mixed, semiactive, thermic Typic Dystrochrepts

Typical Pedon

Wateree sandy loam in an area of Wake-Wateree-Wedowee complex, 8 to 15 percent slopes, rocky; about 5.6 miles east of Louisburg on North Carolina Highway 581, about 1.0 mile south on Secondary Road 1002, about 400 feet west on a private dirt road, about 0.5 mile northwest on the farm road past the barns and through a gate, 300 feet south of the road, on a northeast-facing side slope; Justice USGS topographic quadrangle; lat. 36 degrees 03 minutes 04 seconds N. and long. 78 degrees 12 minutes 06 seconds W.

A—0 to 7 inches; olive brown (2.5Y 4/4) sandy loam; weak fine granular structure; very friable; strongly acid; clear wavy boundary.

Bw1—7 to 18 inches; dark yellowish brown (10YR 4/4) sandy loam; weak medium subangular blocky structure; very friable; strongly acid; gradual smooth boundary.

Bw2—18 to 28 inches; yellowish brown (10YR 5/4) sandy loam; moderate coarse subangular blocky structure; few fine flakes of mica; strongly acid; gradual smooth boundary.

C—28 to 35 inches; multicolored sandy loam saprolite in shades of red, brown, and yellow; massive; friable; few fine flakes of mica; strongly acid; gradual smooth boundary.

Cr1—35 to 50 inches; weathered, highly fractured porphyritic granite that can be dug with slight difficulty with a spade; red and brown stains on surfaces of rock fractures; gradual smooth boundary.

Cr2—50 to 72 inches; weathered, moderately fractured porphyritic granite that can be dug with difficulty with a spade; brown stains on surfaces of most rock fractures that decrease in amount as depth increases.

Range in Characteristics

Thickness of the solum: 14 to 30 inches

Depth to bedrock: 20 to 40 inches to soft bedrock; 40 to more than 60 inches to hard bedrock

Content and size of rock fragments: Less than 20 percent, by volume, in the A and B horizons and less than 35 percent in the C horizon; mostly pebbles

Reaction: Very strongly acid to moderately acid in the A and B horizons and extremely acid to moderately acid in the C horizon

A or Ap horizon:

Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4

Texture—sandy loam

Bw horizon:

Color—hue of 7.5YR to 10YR, value of 4 to 7, and chroma of 4 to 8

Texture—sandy loam or fine sandy loam

C horizon:

Color—horizon has hue of 5YR to 2.5Y, value of 5 or 6, and chroma of 6 or 8 or is multicolored in shades of red, brown, yellow, white, or black

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

Cr horizon:

Type of bedrock—weathered, slightly fractured to highly fractured felsic crystalline coarse grained rock; difficulty in excavation using a spade increases as depth increases

Wedowee Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Parent material: Residuum weathered from felsic crystalline rock

Landscape: Piedmont

Landform: Narrow ridges and hill slopes

Landform position: Convex side slopes

Slope range: 2 to 30 percent

Taxonomic class: Fine, kaolinitic, thermic Typic Kanhapludults

Typical Pedon

Wedowee sandy loam, 2 to 6 percent slopes (fig. 14); about 6.0 miles northwest of Louisburg on Secondary Road 1211 to Mitchner's Crossroads, about 0.6 mile south on Secondary Road 1003, about 150 feet east of a road adjacent to a cemetery; Franklinton USGS topographic quadrangle; lat. 36 degrees 06 minutes 57 seconds N. and long. 78 degrees 23 minutes 53 seconds W.



Figure 14.—Typical pedon of Wedowee sandy loam. The Wedowee soils are very deep. They are the most common soils in the survey area. Depth is marked in inches.

Ap—0 to 5 inches; yellowish brown (10YR 5/4) sandy loam; weak fine granular structure; very friable; slightly acid; abrupt smooth boundary.

BE—5 to 10 inches; yellow (10YR 7/8) sandy clay loam; weak medium subangular blocky structure; friable; very strongly acid; clear smooth boundary.

Bt1—10 to 18 inches; brownish yellow (10YR 6/6) clay loam; few fine prominent red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; few fine strong brown (7.5YR 4/6) clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—18 to 23 inches; brownish yellow (10YR 6/6)

sandy clay; few medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; common fine strong brown (7.5YR 4/6) clay films on faces of peds; very strongly acid; gradual wavy boundary.

BC—23 to 35 inches; brownish yellow (10YR 6/6) clay loam; few fine prominent red (2.5YR 4/8) and yellowish red (5YR 5/8) mottles; weak coarse subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

C1—35 to 40 inches; multicolored sandy clay loam saprolite in shades of yellow, red, brown, and white; massive; very friable; extremely acid; clear wavy boundary.

C2—40 to 62 inches; multicolored sandy loam saprolite in shades of yellow, red, brown, and white; massive; very friable; few fine pockets of clay loam; extremely acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches

Depth to bedrock: More than 60 inches

Content of mica flakes: None or few in the A horizon and the upper part of the B horizon and none to common in the lower part of the B horizon and in the C horizon

Content and size of rock fragments: Less than 35 percent, by volume, in the A horizon and less than 15 percent in the B and C horizons; mostly pebbles

Reaction: Extremely acid to strongly acid throughout the profile, except where the surface layer has been limed

A or Ap horizon:

Color—hue of 7.5YR to 2.5Y, value of 3 to 6, and chroma of 2 to 8

Texture—sandy loam

BE horizon:

Color—hue of 5YR to 10YR, value of 4 to 7, and chroma of 3 to 8

Texture—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam

Bt horizon:

Color—hue of 5YR or 10YR, value of 4 to 6, and chroma of 6 to 8

Texture—sandy clay loam, clay loam, sandy clay, or clay

Mottles—shades of brown, yellow, or red

BC horizon:

Color—hue of 2.5YR to 10YR, value of 5 to 7, and chroma of 4 to 8

Texture—fine sandy loam, loam, sandy clay loam, or clay loam
Mottles—shades of red, brown, or yellow

C horizon:

Color—horizon is multicolored in shades of red, brown, yellow, or white
Texture—sandy loam, fine sandy loam, loam, sandy clay loam, clay loam, or sandy clay saprolite

Wehadkee Series

Depth class: Very deep

Drainage class: Poorly drained

Permeability: Moderate

Parent material: Alluvium from soils that formed in residuum derived from metamorphic or igneous rock

Landscape: Piedmont

Landform: Flood plains

Landform position: Planar to slightly concave slopes

Slope range: 0 to 3 percent

Taxonomic class: Fine-loamy, mixed, semiactive, nonacid, thermic Typic Fluvaquents

Typical Pedon

Wehadkee silt loam in an area of Chewacla and Wehadkee soils, 0 to 3 percent slopes, frequently flooded; about 8.3 miles north of Louisburg on U.S. Highway 401 to Kearney, about 2.6 miles southeast on Secondary Road 1401, about 0.6 mile northeast on Secondary Road 1412, about 500 feet east of the road along the flood plain, on the south side of Sandy Creek; Gold Sand USGS topographic quadrangle; lat. 36 degrees 12 minutes 34 seconds N. and long. 78 degrees 13 minutes 37 seconds W.

A—0 to 14 inches; gray (10YR 5/1) silt loam; moderate medium granular structure; friable; common coarse prominent strong brown (7.5YR 4/6) irregularly shaped masses of iron accumulation with clear boundaries in the matrix; few fine flakes of mica; strongly acid; clear smooth boundary.

Bg—14 to 30 inches; gray (10YR 5/1) silty clay loam; weak fine subangular blocky structure; friable; common medium prominent strong brown (7.5YR 4/6) irregularly shaped masses of iron accumulation with clear boundaries in the matrix; few fine flakes of mica; slightly acid; gradual wavy boundary.

Cg—30 to 62 inches; gray (5Y 5/1) silt loam; massive; friable; common medium distinct olive (5Y 5/3) irregularly shaped masses of iron accumulation

with clear boundaries in the matrix; few fine flakes of mica; slightly acid.

Range in Characteristics

Thickness of the solum: 20 to more than 60 inches

Depth to bedrock: More than 60 inches

Content of mica flakes: Few to many throughout the profile

Content of rock fragments: Less than 15 percent, by volume, in the A and B horizons and less than 35 percent in the C horizon

Reaction: Very strongly acid to slightly acid throughout the profile

A horizon:

Color—horizon has hue of 10YR to 2.5Y, value of 4 to 6, and chroma of 1 to 4 or is neutral in hue and has value of 4 to 6

Texture—silt loam

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of red, brown, or yellow

Bg horizon:

Color—horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2 or is neutral in hue and has value of 4 to 6

Texture—silty clay loam, silt loam, loam, clay loam, or sandy clay loam

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of red, brown, or yellow

Cg horizon:

Color—horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2 or is neutral in hue and has value of 4 to 7

Texture—commonly sandy loam, loam, or silt loam; some pedons have stratified layers of sand, loamy sand, sandy clay loam, clay loam, or silty clay loam

Redoximorphic features—iron or clay depletions in shades of white, gray, or brown and iron accumulations in shades of red, brown, or yellow

Wilkes Series

Depth class: Shallow

Drainage class: Well drained

Permeability: Moderately slow

Parent material: Residuum weathered from



Figure 15.—Typical pedon of Wilkes sandy loam. The Wilkes soils have soft bedrock at a depth of 10 to 20 inches. Depth is marked in inches.

intermediate to mafic high-grade metamorphic or igneous rock

Landscape: Piedmont

Landform: Ridges and hill slopes

Landscape position: Convex side slopes

Slope range: 2 to 30 percent

Taxonomic class: Loamy, mixed, active, thermic, shallow Typic Hapludalfs

Typical Pedon

Wilkes sandy loam in an area of Winnsboro-Wilkes complex, 2 to 8 percent slopes (fig. 15); about 11.5 miles east of Louisburg on North Carolina Highway 56, about 4.8 miles northwest on Secondary Road 1203, about 0.5 mile north on a private subdivision road, 100 feet west of the road, in the woods; Kittrell USGS topographic quadrangle; lat. 36 degrees 08 minutes 07 seconds N. and long. 78 degrees 29 minutes 38 seconds W.

A—0 to 4 inches; brown (10YR 4/3) sandy loam; moderate medium granular structure; very friable; few fine to coarse roots; slightly acid; clear smooth boundary.

Bt—4 to 10 inches; light olive brown (2.5Y 5/4) clay; moderate medium angular blocky structure; very firm; few fine to coarse roots; common distinct yellowish brown (10YR 5/6) clay films on faces of peds; few fine and medium black iron and manganese concretions; slightly acid; clear wavy boundary.

C—10 to 13 inches; pale olive (5Y 6/4) clay loam saprolite; many coarse distinct yellowish brown (10YR 5/4) mottles; massive; friable; common medium soft black minerals; slightly alkaline; abrupt smooth boundary.

Cr—13 to 42 inches; weathered, moderately fractured hornblende gneiss that can be dug with difficulty with a spade.

R—42 inches; unweathered, slightly fractured hornblende gneiss.

Range in Characteristics

Thickness of the solum: 10 to 20 inches

Depth to bedrock: 10 to 20 inches to soft bedrock

Content and size of rock fragments: Less than 50 percent, by volume, in the A horizon and less than 35 percent in the B and C horizons; mostly pebbles and channers

Reaction: Strongly acid to slightly acid in the A horizon and slightly acid to slightly alkaline in the B and C horizons

A or Ap horizon:

Color—hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 2 to 6

Texture—sandy loam

Bt horizon:

Color—hue of 5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8

Mottles (if they occur)—shades of black, green, gray, or white

Texture—loam, sandy clay loam, clay loam, or clay

C horizon:

Color—horizon is multicolored in shades of black, green, brown, or gray

Texture—sandy loam, fine sandy loam, clay loam, or loam saprolite

Mottles—shades of black, green, gray, or white

Cr horizon:

Type of bedrock—weathered, partially consolidated, slightly to highly fractured intermediate to mafic rock

R horizon:

Type of bedrock—unweathered, slightly fractured to highly fractured intermediate to mafic rock

Winnsboro Series

Depth class: Deep

Drainage class: Well drained

Permeability: Slow

Parent material: Residuum weathered from

intermediate to mafic high-grade metamorphic or igneous rock

Landscape: Piedmont

Landform: Broad ridges and hill slopes

Landform position: Slightly concave head slopes

Slope range: 2 to 30 percent

Taxonomic class: Fine, mixed, active, thermic Typic Hapludalfs

Typical Pedon

Winnsboro loam in an area of Winnsboro-Wilkes complex, 2 to 8 percent slopes; about 0.3 mile east of Louisburg on North Carolina Highway 581, about 2.0 miles northeast on Secondary Road 1419, about 1,000 feet south on a logging road, 30 feet north of the road, in the woods; Justice USGS topographic quadrangle; lat. 36 degrees 06 minutes 52 seconds N. and long. 78 degrees 13 minutes 23 seconds W.

A—0 to 6 inches; brown (10YR 4/3) loam; moderate medium granular structure; very friable; few fine to coarse roots; few very fine and medium black iron and manganese concretions; slightly acid; clear smooth boundary.

Bt—6 to 35 inches; yellowish brown (10YR 5/6) clay; moderate medium angular blocky structure; very firm; few fine to coarse roots; common distinct strong brown (7.5YR 4/6) clay films on faces of peds; few fine and medium black iron and manganese concretions; slightly acid; clear wavy boundary.

BC—35 to 40 inches; yellowish brown (10YR 5/6) clay loam; common medium distinct brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; firm; few distinct strong brown (7.5YR 4/6) clay films on faces of peds; neutral; clear wavy boundary.

C—40 to 48 inches; multicolored loam saprolite in shades of brown, yellow, and olive; massive; friable; common medium soft black minerals; common medium flakes of mica; slightly alkaline; abrupt smooth boundary.

Cr—48 to 62 inches; weathered, highly fractured hornblende gneiss.

Range in Characteristics

Thickness of the solum: 20 to 40 inches

Depth to bedrock: 40 to 60 inches to soft bedrock; more than 60 inches to hard bedrock

Content and size of rock fragments: Less than 35 percent, by volume, throughout the profile; mostly pebbles

Reaction: Strongly acid to slightly acid in the A horizon and slightly alkaline throughout the rest of the profile

A horizon:

Color—hue of 7.5YR to 2.5Y, value of 3 to 6, and chroma of 2 to 6

Texture—loam

Bt horizon:

Color—hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8

Texture—clay loam or clay

Mottles (if they occur)—shades of yellow, brown, or olive

BC horizon:

Color—hue of 7.5YR to 2.5Y, value of 2 to 6, and chroma of 1 to 8

Mottles (if they occur)—shades of yellow, brown, olive, or black

Texture—sandy clay loam, clay loam, or clay

C horizon:

Color—horizon is multicolored in shades of yellow, brown, olive, or black

Texture—sandy loam, loam, sandy clay loam, or clay loam saprolite

Cr horizon:

Type of bedrock—weathered, slightly fractured to highly fractured intermediate mafic rock that can be dug with difficulty with a spade

Formation of the Soils

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

Factors of Soil Formation

Soils are formed by processes of the environment acting upon geologic agents, such as metamorphic, igneous, and sedimentary rocks and fluvial stream sediments. The characteristics of a soil are determined by the combined influence of parent material, climate, plant and animal life, relief, and time. These five factors are responsible for the profile development and chemical properties that differentiate soils (5).

Parent Material

Parent material is the unconsolidated mass in which a soil forms. In Franklin County, parent material is a major factor in determining what kind of soil forms and can be correlated to some degree to geologic formations. The general soil map can be used as an approximate guide to the geology of the county.

The soils of the Wedowee-Helena, Wake-Wedowee-Wateree, and Cecil-Pacolet general soil map units formed in materials weathered from felsic igneous and metamorphic rocks (such as granite, biotite gneiss, and porphyritic granite). The soils of the Chewacla-Wehadkee-Altavista general soil map unit formed in materials derived from recent alluvium. The soils of the Georgeville-Tatum-Herndon general soil map unit formed in materials derived from fine grained metamorphic rocks (such as schist, phyllites, and slates). The soils of the Varina-Duplin general soil map unit formed in marine sediments over residuum weathered from felsic crystalline rock.

Parent material is largely responsible for the chemical and mineralogical composition of soils and for the major differences among the soils of the county. Major differences in parent material, such as differences in texture, can be observed in the field. Less distinct differences, such as differences in mineralogical composition, can be determined only by careful laboratory analysis.

Climate

Climate, particularly precipitation and temperature, affects the physical, chemical, and biological relationships in the soil. It influences the rate at which rocks weather and organic matter decomposes. The amount of leaching in a soil is related to the amount of rainfall and the movement of water through the soil. The effects of climate also control the kinds of plants and animals living in and on the soil. Temperature influences the kind and growth of organisms and the speed of chemical and physical reactions in the soil.

Franklin County has a warm, humid climate. The climate favors rapid chemical processes, which result in the decomposition of organic matter and the weathering of rocks. The effects of climate are reflected in the soils of the county. Mild temperatures throughout the year and abundant rainfall have resulted in the depletion of organic matter and considerable leaching of soluble bases. Because variations in the climate of the county are small, climate has probably not caused major local differences among soils. Climate has mainly affected the formation of soils in Franklin County by altering the parent material through changes in temperature and in the amount of precipitation and through influences on plant and animal life.

Plant and Animal Life

Plants and animals influence the formation and differentiation of soil horizons. The type and number of organisms in and on the soil are determined in part by climate and in part by the nature of the soil material, relief, and the age of the soil. Bacteria, fungi, and other micro-organisms aid in the weathering of rocks and in the decomposition of organic matter. The plants and animals that live on a soil are the primary source of organic material.

Plants largely determine the kinds and amounts of organic matter that are added to a soil under normal conditions and the way in which the organic matter is added. They also are important for the changes of base status and for the leaching process of a soil.

Animals convert complex compounds into simpler forms, add organic matter to the soil, and modify certain chemical and physical properties of soil. In Franklin County most of the organic material accumulates on the surface. It is acted upon by microorganisms, fungi, earthworms, and other forms of life and by direct chemical reaction. It is mixed with the uppermost mineral part of the soil by the activities of earthworms and other small invertebrates.

Under the native forest of this county, not enough bases are brought to the surface by plants to counteract the effects of leaching. Generally, the soils of the county developed under a hardwood forest. Trees took up elements from the subsoil and added organic matter to the soil by depositing leaves, roots, twigs, and other plant remains on the surface. The material deposited on the surface was acted upon by organisms and underwent chemical reaction.

Organic material decomposes rapidly in the county because of the moderate temperatures, the abundant moisture supply, and the character of the organic material. It decays so rapidly that little of it accumulates in the soil.

Relief

Relief causes differences in free drainage, surface runoff, soil temperature, and the extent of geologic erosion. Relief in Franklin County is largely determined by the kind of underlying bedrock, the geology of the area, and the extent that the landscape is dissected by streams.

Relief affects the percolation of water through the profile. Water movement through the profile is important in soil development because it aids chemical reactions and is necessary for leaching.

Slopes in the county range from 0 to about 30 percent. The upland soils that have slopes of less than 8 percent generally have deeper, better defined profiles than the steeper soils. Examples are the well developed Cecil, Appling, and Georgeville soils. Relief affects the depth of soils. On some soils that have slopes of 15 percent, geologic erosion removes soil material almost as fast as it forms. As a result, most of the strongly sloping to steep soils have a thin solum. Examples are Pacolet and Tatum soils. These soils are not so deep to saprolite as the less sloping soils.

Relief also affects drainage. For example, a high water table usually occurs in nearly level and gently sloping areas. Helena and Duplin soils on uplands are moderately well drained because they are nearly level or gently sloping and water moves through them slowly.

Soils at the lower elevations are less sloping and

receive runoff from the adjacent higher areas. This runoff tends to accumulate in the nearly level to slightly concave areas. The somewhat poorly drained Chewacla soils and the poorly drained Wehadkee soils on flood plains are in these areas.

Time

The length of time that soil material has been exposed to the soil-forming processes accounts for some differences between soils. The formation of a well defined profile, however, also depends on other factors. Less time is required for a profile to develop in coarse textured material than in similar but finer textured material, even if the environment is the same for both materials. Less time is required for a profile to develop in an area, such as Franklin County, that is warm and humid and has a dense plant cover than in a cold, dry area that has a sparse plant cover.

Soils vary considerably in age. The length of time that a soil has been forming is generally reflected in the profile. Old soils generally have better defined horizons than young soils. In Franklin County, the effects of time as a soil-forming factor are more apparent in the older soils that are in the broader parts of the uplands. Examples are Cecil and Appling soils. These soils have well defined horizons. In contrast, young soils, such as Buncombe and Wehadkee soils, formed in recent alluvium on flood plains and have not been in place long enough to develop as completely as Cecil and Appling soils.

Processes of Horizon Differentiation

One or more soil-forming processes are involved in the formation of soil horizons. These processes are the accumulation of organic matter; the leaching of carbonates and other soluble material; the chemical weathering, mainly by hydrolysis, of primary minerals into silicate clay minerals; the translocation of silicate clay and some silt-sized particles from one horizon to another; and the reduction and transfer of iron.

These processes have been active in the formation of most of the soils in Franklin County. The interaction of the first four processes is indicated by the strongly expressed horizons in Georgeville and Appling soils. All five processes have probably been active in the formation of the moderately well drained Helena and Duplin soils.

Some organic matter has accumulated in all of the soils in the survey area. Most of the soils contain moderate amounts of organic matter in the surface

layer. The content of organic matter ranges from low, as in Vance soils, to high, as in Wehadkee soils.

Most of the soils in the survey area are acid in the upper layers, unless the surface layer has been limed.

The translocation of clay minerals is an important process in the development of many soils in the survey area. As clay minerals are removed from the A horizon, they accumulate as clay films on the faces of peds, in pores, and in root channels in the B horizon.

As silicate clay forms from primary minerals, some iron is commonly released as hydrated oxides. These oxides are generally red. Even if they occur in small amounts, they give the soil material a brownish color. They are largely responsible for the strong brown, yellowish brown, or reddish brown colors that are

dominant in the subsoil of many soils in the survey area.

The reduction and transfer of iron have occurred in all of the soils that are not characterized by good natural drainage. This process, known as gleying, is evidenced by a gray matrix color and by iron or clay depletions. Some of the iron may be reoxidized and segregated and thus form yellow, brown, red, or other brightly colored masses of iron accumulation in an essentially gray matrix in the subsoil. Nodules or concretions of iron or manganese also commonly form as a result of this process. Soil features associated with chemically reduced iron are referred to as redoximorphic features (18).

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Glossary

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

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

Amphibolite. A metamorphic rock consisting mainly of amphibole and plagioclase with little or no quartz. As the content of quartz increases, the rock grades into hornblende plagioclase gneiss.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

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

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Atterberg limits. Atterberg limits are measured for soil materials passing the No. 40 sieve. They include the liquid limit (LL), which is the moisture content at which the soil passes from a plastic to a liquid state, and the plasticity index (PI), which is the water content corresponding to an arbitrary limit between the plastic and semisolid states of consistency of a soil.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9

High

9 to 12

Very high

more than 12

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

Basic rock. An igneous rock composed dominantly of dark minerals. The minerals of this rock are comparatively low in silica and rich in bases, such as amphiboles, pyroxenes, biotite, and olivine.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Biotite. A common rock-forming mineral consisting primarily of ferromagnesian silicate minerals. Color ranges from dark brown to green in thin section. Biotite is commonly referred to as "black mica" because of the natural black color.

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

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

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

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

Channery soil material. Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay,

less than 45 percent sand, and less than 40 percent silt.

- Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.
- Clayey.** A general textural term that includes sandy clay, silty clay, and clay. According to family level criteria in the soil taxonomic system, a specific textural name referring to fine earth (particles less than 2 millimeters in size) containing 35 percent or more clay, by weight, within the control section. The content of rock fragments is less than 35 percent, by volume.
- Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
- Clod.** See Aggregate, soil.
- Coarse fragments.** If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.
- Coarse-loamy.** According to family level criteria in the soil taxonomic system, soil containing less than 18 percent, by weight, clay and 15 percent or more fine sand or coarser material.
- Coarse textured soil.** Sand or loamy sand.
- Coastal Plain.** The physiographic region of eastern North Carolina that consists of ocean-deposited sediments of sand, silt, and clay. These sediments are in level to rolling areas and vary in thickness.
- Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
- Cobbly soil material.** Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.
- Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
- Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate,

iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

- Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.
- Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.
- Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."
- Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.
- Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.
- Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.
- Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- Cropping system.** Growing crops according to a planned system of rotation and management practices.
- Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Crust. A thin, hard layer of soil material that forms on the surface of cultivated areas as the result of fine soil material settling out of ponding.

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

Delineation. The process of drawing or plotting features on a map with lines and symbols.

Depression (depressional area). A portion of land surrounded on all sides by higher land. These areas generally do not have outlets for drainage.

Depth class. Refers to the depth to a root-restricting layer. Unless otherwise stated, this layer is understood to be consolidated bedrock. The depth classes in this survey are:

Very shallow	less than 10 inches
Shallow	10 to 20 inches
Moderately deep	20 to 40 inches
Deep	40 to 60 inches
Very deep	more than 60 inches

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

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

Diabase. A rock of basaltic composition consisting primarily of labradorite and pyroxene and characterized by ophitic texture.

Diorite. A coarse grained igneous rock with the composition of andesite (no quartz or orthoclase). It is composed of about 75 percent plagioclase feldspars with the balance being ferromagnesian silicates.

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

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained*. These classes are defined in the "Soil Survey Manual."

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

Drainageway. A narrow, gently sloping to very steep,

concave colluvial area along an intermittent or perennial stream.

Engineering index test data. Laboratory test and mechanical analysis of selected soils in the county.

Eroded (soil phase). Because of erosion, the soil has lost an average of 25 to 75 percent of the original A horizon or the uppermost 2 to 6 inches if the original A horizon was less than 8 inches thick.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion classes. Classes based on estimates of past erosion. The classes are as follows:

Class 1.—Soils that have lost some of the original A horizon but on the average less than 25 percent of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick). Throughout most areas, the thickness of the surface layer is within the normal range of variability of the uneroded soil. Class 1 erosion typically is not designated in the name of the map unit or in the map symbol.

Class 2.—Soils that have lost an average of 25 to 75 percent of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick). Throughout most cultivated areas of class 2 erosion, the surface layer consists of a mixture of the original A horizon and material from below. Some areas may have intricate patterns ranging from uneroded spots to spots where all of the original A horizon has been removed.

Class 3.—Soils that have lost an average of 75 percent or more of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick). In most cultivated areas of class 3 erosion, material that was below the original A horizon is exposed. The plow layer consists entirely or largely of this material.

Class 4.—Soils that have lost all of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick) plus some or all of the deeper horizons throughout

most of the area. The original soil can be identified only in spots. Some areas may be smooth, but most have an intricate pattern of gullies.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Exposed material is hard or soft bedrock. Areas identified on the detailed soil maps by a special symbol typically are long, narrow bands that are less than 2 acres in size. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fast intake (in tables). The rapid movement of water into the soil.

Felsic rock. A general term for light-colored igneous rock and some metamorphic crystalline rock that have an abundance of quartz, feldspars, feldspathoids, and muscovite mica.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field border. A strip of perennial vegetation (trees, shrubs, or herbaceous plants) established on the edge of a field to control erosion, provide travel lanes for farm machinery, control competition from adjacent woodland, or provide food and cover for wildlife.

Fine-loamy. According to family level criteria in the soil taxonomic system, soil containing 18 to 35 percent, by weight, clay and 15 percent or more fine sand or coarser material.

Fine textured soil. Sandy clay, silty clay, or clay.

Flooding. The temporary covering of the soil surface by flowing water from any source, such as overflowing streams, runoff from adjacent or surrounding slopes, and inflow from high tides. The frequency of flooding generally is expressed as none, rare, occasional, or frequent. *None* means that flooding is not probable. *Rare* means that flooding is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year). *Occasional* means that flooding occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year). *Frequent* means that flooding occurs often under normal weather conditions (the chance of flooding is more than 50 percent in any year). The duration of flooding is expressed as *very brief* (less than 2

days), *brief* (2 to 7 days), *long* (7 days to 1 month), and *very long* (more than 1 month).

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

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors which differentiate it from other stands.

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

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

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

Gneiss. A coarse grained metamorphic rock in which bands rich in granular minerals alternate with bands that are predominantly schistose minerals. It is commonly formed by the metamorphism of granite.

Granite. A coarse grained igneous rock dominated by light-colored minerals, consisting of about 50 percent orthoclase and 25 percent quartz with the balance being plagioclase feldspars and ferromagnesian silicates. Granites and granodiorites comprise 95 percent of all intrusive rocks.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Gully. A very small channel with steep sides cut by running water and through which water ordinarily runs only after rainfall, icemelt, or snowmelt. The

distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage. Areas identified on the detailed soil maps by a special symbol typically are less than 2 acres in size.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Head slope. A concave, horseshoe-shaped slope on a mountain landscape at the head of an intermittent drainageway.

High-grade metamorphic rocks. Highly metamorphosed rocks, such as gneiss and schist.

High water table (seasonal). The highest level of a saturated zone in the soil (the apparent or perched water table) over a continuous period of more than 2 weeks in most years, but not a permanent water table.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above the surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

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

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a

combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Hornblende. A rock-forming ferromagnesian silicate mineral of the amphibole group.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

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

Intermediate rock. Igneous or metamorphic crystalline rock that is intermediate in composition between mafic and felsic rock.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones that have a low content of iron and manganese oxide because of chemical reduction and removal but also have a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Kaolinite. An aluminosilicate clay mineral with a 1:1 layer structure; that is, a silicon tetrahedral sheet alternating with an aluminum octahedral sheet.

Little or no expansion occurs when water mixes with the clay.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Landform position. A particular place within a landform. Examples are summit of a ridge, shoulder of a ridge, nose slope, side slope, back slope, and foot slope.

Landscape. A collection of related, natural landforms; usually the land surface which can be seen in a single view.

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

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

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy. A general textural term that includes coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, and silty clay loam. According to family level criteria in the soil taxonomic system, a specific textural name referring to fine earth (particles less than 2 millimeters in size) of loamy very fine sand or finer textured material that contains less than 35 percent clay, by weight, within the control section. The content of rock fragments is less than 35 percent, by volume.

Low stream terrace. A terrace in an area that floods, commonly 3 to 10 feet higher in elevation than the adjacent flood plain.

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

Mafic rock. A dark rock composed predominantly of magnesium silicates. It can contain small amounts of quartz, feldspar, or muscovite mica.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

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

Micas. A group of silicate minerals characterized by sheet or scale cleavage. Biotite is the

ferromagnesian black mica. Muscovite is the potassic white mica.

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

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

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

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

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

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

No-till planting. A method of planting crops in which there is virtually no seedbed preparation. A thin slice of the soil is opened, and the seed is planted at the desired depth.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

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

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

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

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

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

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

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

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

Piedmont. The physiographic region of central North Carolina characterized by rolling landscapes formed from the weathering of residual rock material.

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

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of

moisture content within which the soil remains plastic.

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

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay and quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is also exposed to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

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

Porphyritic. A textural term for igneous rocks in which larger crystals, called phenocrysts, are set in a finer groundmass. The groundmass may be crystalline or glassy, or both.

Potential, soil. Relative terms are assigned to classes to indicate the potential of a soil for a particular use as compared with that of other soils in the area. The rating classes do not identify the most profitable soil use or imply a recommendation for a particular use. The following class terms and definitions are used nationwide:

Very high.—Production or performance is at or above local standards because soil conditions are exceptionally favorable, installation or management costs are low, and soil limitations are insufficient.

High.—Production or performance is at or above the level of locally established standards, the costs of measures for overcoming soil limitations are judged locally to be favorable in relation to the expected performance or yields, and soil limitations that continue after corrective measures are installed do not detract appreciably from environmental quality or economic returns.

Medium.—Production or performance is somewhat below locally established standards, the costs of measures for overcoming soil limitations are high, or soil limitations that continue after corrective measures are installed detract from environmental quality or economic returns.

Low.—Production or performance is significantly below local standards, measures that are required to overcome soil limitations are very costly, or soil

limitations that continue after corrective measures are installed detract appreciably from environmental quality or economic returns.

Very low.—Production or performance is much below locally established standards, severe soil limitations exist for which economically feasible measures are unavailable, or soil limitations that continue after corrective measures are installed seriously detract from environmental quality or economic returns.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate weather conditions and soil moisture conditions and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

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

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. They indicate chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been

removed. They indicate the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation. Descriptive terms for concentrations and depletions are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

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

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

Ridge. A long, narrow elevation of the land surface, commonly having a sharp crest and steep sides.

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

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

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called groundwater runoff or seepage flow from ground water.

Runoff class (surface). Refers to the rate at which water flows away from the soil over the surface without infiltrating. Six classes of rate of runoff are recognized:

Ponded.—Little of the precipitation and water that runs onto the soil escapes as runoff, and free water stands on the surface for significant periods. The amount of water that is removed from ponded areas by movement through the soil, by plants, or

by evaporation is usually greater than the total rainfall. Ponding normally occurs on level and nearly level soils in depressions. The water depth may fluctuate greatly.

Very slow.—Surface water flows away slowly, and free water stands on the surface for long periods or immediately enters the soil. Most of the water passes through the soil, is used by plants, or evaporates. The soils are commonly level or nearly level or are very porous.

Slow.—Surface water flows away so slowly that free water stands on the surface for moderate periods or enters the soil rapidly. Most of the water passes through the soil, is used by plants, or evaporates. The soils are nearly level or very gently sloping, or they are steeper but absorb precipitation very rapidly.

Medium.—Surface water flows away so rapidly that free water stands on the surface for only short periods. Part of the precipitation enters the soil and is used by plants, is lost by evaporation, or moves into underground channels. The soils are nearly level to gently sloping and absorb precipitation at a moderate rate, or they are steeper but absorb water rapidly.

Rapid.—Surface water flows away so rapidly that the period of concentration is brief and free water does not stand on the surface. Only a small part of the water enters the soil. The soils are mainly moderately steep or steep and have moderate or slow rates of absorption.

Very rapid.—Surface water flows away so rapidly that the period of concentration is very brief and free water does not stand on the surface. Only a small part of the water enters the soil. The soils are mainly steep or very steep and absorb precipitation slowly.

Sand. As a soil separate, individual rock or mineral fragments ranging from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandy. A general textural term that includes coarse sand, sand, fine sand, very fine sand, loamy coarse sand, loamy sand, loamy fine sand, and loamy very fine sand. According to family level criteria in the soil taxonomic system, a specific textural name referring to fine earth (particles less than 2 millimeters in size) of sand or loamy sand that contains less than 50 percent very fine sand, by weight, within the control section. The content of rock fragments is less than 35 percent, by volume.

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

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Schist. A metamorphic rock that is dominantly fibrous or platy minerals. It has schistose cleavage and is a product of regional metamorphism.

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

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Sesquioxides. A general term for oxides and hydroxides of iron and aluminum.

Shoulder. The landscape position, parallel to the summit, that is directly below the ridgetop and directly above the side slope.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. The landscape position that is directly below the shoulder and directly above the toe slope. It makes up most of the mountainside or hillside.

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

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slate. A fine grained metamorphic rock with well developed slaty cleavage. Formed by the low-grade regional metamorphism of shale.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In

soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 3 percent
Gently sloping	2 to 8 percent
Moderately sloping	6 to 10 percent
Strongly sloping	10 to 15 percent
Moderately steep	15 to 30 percent

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

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

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

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

Soil compaction. An alteration of soil structure that ultimately can affect the biological and chemical properties of the soil. Compaction decreases the extent of voids and increases bulk density.

Soil map unit. A kind of soil or miscellaneous area or a combination of two or more soils or one or more soils and one or more miscellaneous areas that can be shown at the scale of mapping for the defined purposes and objectives of the soil survey. Soil map units generally are designed to reflect significant differences in use and management among the soils of a survey area.

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

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10

Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Soil strength. The load-supporting capacity of a soil at specific moisture and density conditions.

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

Specialty crop. Crops, such as Fraser fir grown for use as Christmas trees, that require intensive management and a specific combination of soils and climate.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Suitability ratings. Ratings for the degree of suitability of soils for pasture, crops, woodland, and engineering uses. The ratings and the general criteria used for their selection are as follows:

Well suited.—The intended use may be initiated and maintained by using only the standard materials and methods typically required for that use. Good results can be expected.

Suited or moderately suited.—The limitations affecting the intended use make special planning, design, or maintenance necessary.

Poorly suited.—The intended use is difficult or costly to initiate and maintain because of certain soil properties, such as steep slopes, a severe

hazard of erosion, a high water table, low fertility, and a hazard of flooding. Major soil reclamation, special design, or intensive management practices are needed.

Very poorly suited, not suited, or unsuited.—The intended use is very difficult or costly to initiate and maintain, and thus it generally should not be undertaken.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters).

Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.” The textural classes are defined as follows:

Sands (coarse sand, sand, fine sand, and very fine sand).—Soil material in which the content of sand is 85 percent or more and the percentage of silt plus $1\frac{1}{2}$ times the percentage of clay does not exceed 15.

Loamy sands (loamy coarse sand, loamy sand, loamy fine sand, and loamy very fine sand).—Soil material in which, at the upper limit, the content of sand is 85 to 90 percent and the percentage of silt plus $1\frac{1}{2}$ times the percentage of clay is not less than 15; at the lower limit, the content of sand is 70 to 85 percent and the percentage of silt plus twice the percentage of clay does not exceed 30.

Sandy loams (coarse sandy loam, sandy loam, fine sandy loam, and very fine sandy loam).—Soil material in which the content of clay is 20 percent or less, the percentage of silt plus twice the

percentage of clay exceeds 30, and the content of sand is 52 percent or more or soil material in which the content of clay is less than 7 percent, the content of silt is less than 50 percent, and the content of sand is 43 to 52 percent.

Loam.—Soil material that contains 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand.

Silt loam.—Soil material that contains 50 percent or more silt and 12 to 27 percent clay or 50 to 80 percent silt and less than 12 percent clay.

Silt.—Soil material that contains 80 percent or more silt and less than 12 percent clay.

Sandy clay loam.—Soil material that contains 20 to 35 percent clay, less than 28 percent silt, and 45 percent or more sand.

Clay loam.—Soil material that contains 27 to 40 percent clay and 20 to 45 percent sand.

Silty clay loam.—Soil material that contains 27 to 40 percent clay and less than 20 percent sand.

Sandy clay.—Soil material that contains 35 percent or more clay and 45 percent or more sand.

Silty clay.—Soil material that contains 40 percent or more clay and 40 percent or more silt.

Clay.—Soil material that contains 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topography. The relative positions and elevations of the natural or manmade features of an area that describe the configuration of its surface.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Underlying material. Technically the C horizon; the part of the soil below the biologically altered A and B horizons.

Understory. The trees and other woody species growing under a more or less continuous cover of branches and foliage formed collectively by the upper portions of adjacent trees and other woody growth.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Water table (apparent). A thick zone of free water in the soil. The apparent water table is indicated by the level at which water stands in an uncased

borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table (perched). A saturated zone of water in the soil standing above an unsaturated zone.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Wetness. A general term applied to soils that hold water at or near the surface long enough to be a common management problem.

Wilting point (or permanent wilting point). The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Yield (forest land). The volume of wood fiber from trees harvested in a certain unit of area. Yield is usually measured in board feet or cubic feet per acre.

Tables

Table 1.—Temperature and Precipitation

(Recorded in the period 1951-90 at Louisburg, North Carolina)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
° F	° F	° F	° F	° F	Units	In	In	In	In		
January-----	50.0	24.1	37.1	75	2	25	3.65	2.08	5.03	7	1.6
February-----	53.0	25.7	39.4	76	6	20	4.02	2.36	5.49	7	1.4
March-----	61.8	33.4	47.6	86	16	83	4.08	2.73	5.31	8	1.1
April-----	72.7	41.9	57.3	92	24	231	3.27	1.56	4.74	6	.0
May-----	79.9	51.2	65.6	95	31	484	4.17	2.59	5.59	7	.0
June-----	86.7	59.7	73.2	100	42	696	3.71	1.61	5.49	5	.0
July-----	89.8	64.4	77.1	101	49	840	4.72	2.39	6.74	7	.0
August-----	88.4	63.5	76.0	99	48	806	5.13	2.67	7.27	7	.0
September---	63.0	55.8	69.4	97	36	582	3.69	1.70	5.40	5	.0
October-----	72.9	43.2	58.1	89	23	273	3.22	1.34	4.81	5	.0
November-----	63.1	32.9	48.0	82	14	44	3.29	1.58	4.77	5	.0
December-----	53.0	26.0	39.5	76	6	21	3.40	1.52	5.00	6	.5
Yearly:											
Average---	71.2	43.5	57.4	---	---	---	---	---	---	---	---
Extreme---	---	---	---	102	1	---	---	---	---	---	---
Total-----	---	---	---	---	---	4,105	46.35	40.44	51.99	75	4.6

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.—Freeze Dates in Spring and Fall

(Recorded in the period 1951-90 at Louisburg, North Carolina)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 18	May 5	May 23
2 years in 10 later than--	Apr. 9	Apr. 25	May 12
5 years in 10 later than--	Mar. 22	Apr. 7	Apr. 20
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 14	Sept. 30	Sept. 21
2 years in 10 earlier than--	Oct. 24	Oct. 10	Oct. 1
5 years in 10 earlier than--	Nov. 11	Oct. 29	Oct. 22

Table 3.—Growing Season

(Recorded in the period 1951-90 at Louisburg, North Carolina)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	<u>Days</u>	<u>Days</u>	<u>Days</u>
9 years in 10	206	180	152
8 years in 10	213	187	161
5 years in 10	228	199	178
2 years in 10	244	213	195
1 year in 10	253	220	205

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

Map symbol	Soil name	Acres	Percent
AaA	Altavista sandy loam, 0 to 3 percent slopes, rarely flooded-----	3,040	1.0
ApB	Appling loamy sand, 2 to 6 percent slopes-----	12,489	3.9
CaB	Cecil sandy loam, 2 to 6 percent slopes-----	16,089	5.1
CaC	Cecil sandy loam, 6 to 10 percent slopes-----	7,810	2.5
CeB2	Cecil clay loam, 2 to 6 percent slopes, eroded-----	7,912	2.5
ChA	Chewacla and Wehadkee soils, 0 to 3 percent slopes, frequently flooded-----	24,216	7.6
DuA	Duplin sandy loam, 0 to 3 percent slopes-----	1,903	0.6
GeB	Georgeville loam, 2 to 6 percent slopes-----	9,254	2.9
GeC	Georgeville loam, 6 to 10 percent slopes-----	5,904	1.9
GgC	Georgeville gravelly loam, 6 to 10 percent slopes-----	2,687	0.8
GhB	Georgeville gravelly loam, 2 to 8 percent slopes, stony-----	1,236	0.4
GkB2	Georgeville clay loam, 2 to 6 percent slopes, eroded-----	1,906	0.6
GmD	Georgeville-Montonia complex, 8 to 15 percent slopes, very stony-----	953	0.3
GmE	Georgeville-Montonia complex, 15 to 30 percent slopes, very stony-----	155	*
HeB	Helena sandy loam, 2 to 6 percent slopes-----	21,523	6.8
HrB	Herndon loam, 2 to 6 percent slopes-----	1,674	0.5
HrC	Herndon loam, 6 to 10 percent slopes-----	1,399	0.4
M-W	Miscellaneous water-----	2,350	0.7
PaC2	Pacolet clay loam, 6 to 10 percent slopes, eroded-----	5,765	1.8
PaD2	Pacolet clay loam, 10 to 15 percent slopes, eroded-----	4,451	1.4
PuC	Pacolet-Urban land complex, 2 to 10 percent slopes-----	795	0.3
RaA	Rains-Toisnot complex, 0 to 2 percent slopes-----	569	0.2
ReD	Rion-Waterree-Wedowee complex, 8 to 15 percent slopes-----	106	*
RmA	Riverview and Buncombe soils, 0 to 3 percent slopes, frequently flooded-----	1,569	0.5
RoA	Roanoke-Wahee complex, 0 to 3 percent slopes, occasionally flooded-----	1,190	0.4
RwC	Rock outcrop-Wake complex, 2 to 10 percent slopes-----	77	*
StA	State loam, 0 to 3 percent slopes, rarely flooded-----	342	0.1
TaD	Tatum loam, 10 to 15 percent slopes-----	3,193	1.0
TaE	Tatum loam, 15 to 30 percent slopes-----	785	0.2
Ud	Udorthents, loamy-----	862	0.3
VaB	Vance sandy loam, 2 to 6 percent slopes-----	13,947	4.4
VaC	Vance sandy loam, 6 to 10 percent slopes-----	673	0.2
VgB	Varina gravelly sandy loam, 2 to 6 percent slopes-----	1,977	0.6
VnB	Varina loamy sand, 2 to 6 percent slopes-----	5,090	1.6
VnC	Varina loamy sand, 6 to 10 percent slopes-----	565	0.2
W	Water-----	3,726	1.1
WaB	Wake-Saw-Wedowee complex, 2 to 8 percent slopes, rocky-----	26,701	8.4
WbD	Wake-Waterree-Wedowee complex, 8 to 15 percent slopes, rocky-----	26,008	8.2
WcE	Wake-Waterree complex, 15 to 30 percent slopes, very rocky-----	5,770	1.8
WdE	Waterree-Rion-Wedowee complex, 15 to 30 percent slopes-----	121	*
WeB	Wedowee sandy loam, 2 to 6 percent slopes-----	52,727	16.6
WeC	Wedowee sandy loam, 6 to 10 percent slopes-----	30,928	9.8
WeD	Wedowee sandy loam, 10 to 15 percent slopes-----	2,973	0.9
WuC	Wedowee-Urban land-Udorthents complex, 2 to 10 percent slopes-----	1,054	0.3
WwB	Winnsboro-Wilkes complex, 2 to 8 percent slopes-----	1,382	0.4
WwD	Winnsboro-Wilkes complex, 8 to 15 percent slopes-----	660	0.2
WwE	Winnsboro-Wilkes complex, 15 to 30 percent slopes-----	249	0.1
	Total-----	316,755	100.0

* Less than 0.1 percent.

Table 5.-Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. Absence of an entry indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Soil name and map symbol	Land capability	Tobacco	Corn	Corn silage	Soybeans	Wheat	Pasture	Grass- legume hay
		<u>Lbs</u>	<u>Bu</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>AUM*</u>	<u>Tons</u>
AaA----- Altavista	IIw	3,000	150	---	42	80	11.5	---
ApB----- Appling	IIe	3,000	110	---	40	60	8.0	4.8
CaB----- Cecil	IIe	3,000	110	---	40	60	8.0	3.2
CaC----- Cecil	IIIe	2,000	90	---	40	60	7.5	3.0
CeB2----- Cecil	IIIe	2,500	70	---	35	55	5.5	2.4
ChA: Chewacla-----	IVw	---	125	---	45	30	9.0	4.0
Wehadkee-----	VIw	---	---	---	---	---	8.5	---
DuA----- Duplin	IIw	3,000	110	---	45	80	10.0	---
GeB----- Georgeville	IIe	2,500	100	---	40	55	---	---
GeC----- Georgeville	IIIe	2,000	90	---	---	---	---	---
GgC----- Georgeville	IIIe	---	80	---	---	---	---	---
GhB----- Georgeville	IIe	---	85	---	---	---	---	---
GkB2----- Georgeville	IIIe	---	75	---	---	---	---	---
GmD: Georgeville----	IVe	---	60	---	---	---	---	---
Montonia-----	IVe	---	---	---	---	---	---	3.7
GmE: Georgeville----	VIe	---	---	---	---	---	---	---
Montonia-----	VIe	---	---	---	---	---	---	3.4
HeB----- Helena	IIe	2,100	80	---	---	---	5.8	3.5
HrB----- Herndon	IIe	2,200	95	---	---	---	---	---

See footnotes at end of table.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Soil name and map symbol	Land capability	Tobacco	Corn	Corn silage	Soybeans	Wheat	Pasture	Grass- legume hay
		<u>Lbs</u>	<u>Bu</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>AUM*</u>	<u>Tons</u>
HrC----- Herndon	IIIe	2,000	85	---	---	---	---	---
M-W----- Miscellaneous water	VIIIIs	---	---	---	---	---	---	---
PaC2----- Pacolet	IVe	2,000	75	---	---	---	---	---
PaD2----- Pacolet	VIe	---	---	---	---	---	---	---
PuC**: Pacolet-----	IIIe	2,100	80	---	---	---	---	---
Urban land-----	VIIIIs	---	---	---	---	---	---	---
RaA: Rains-----	IIIw	2,300	125	---	40	---	---	---
Toisnot-----	Vw	---	---	---	---	---	---	---
ReD: Rion-----	IVe	1,800	65	---	25	30	---	---
Wateree-----	VIe	---	---	---	---	---	---	---
Wedowee-----	IVe	---	60	---	---	---	---	---
RmA: Riverview-----	IVw	---	80	---	30	---	---	---
Buncombe-----	Vw	---	---	---	---	---	---	---
RoA: Roanoke-----	IVw	---	---	---	---	---	5.2	2.0
Wahee-----	IIw	---	110	---	45	---	---	---
RwC**: Rock outcrop---	VIIIIs	---	---	---	---	---	---	---
Wake-----	IVs	---	30	---	---	---	3.0	---
StA----- State	I	3,000	130	---	50	80	---	5.1
TaD----- Tatum	IIIe	---	85	17.0	30	45	7.5	2.5
TaE----- Tatum	IVe	---	65	13.0	---	35	7.0	2.0
Ud----- Udorthents	VIe	---	---	---	---	---	4.5	---
VaB----- Vance	IIIe	3,000	80	---	40	60	8.0	4.8

See footnotes at end of table.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Soil name and map symbol	Land capability	Tobacco	Corn	Corn silage	Soybeans	Wheat	Pasture	Grass- legume hay
		<u>Lbs</u>	<u>Bu</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>AUM*</u>	<u>Tons</u>
VaC----- Vance	IVe	1,900	75	---	30	55	8.0	4.8
VgB, VnB----- Varina	IIe	3,000	100	---	40	60	---	---
VnC----- Varina	IIIe	2,000	85	---	35	---	---	---
WaB:								
Wake-----	IVs	---	30	---	---	---	3.0	---
Saw-----	IIe	---	75	---	25	35	6.0	---
Wedowee-----	IIe	---	80	---	---	---	---	---
WbD:								
Wake-----	VIIs	---	---	---	---	---	2.5	---
Wateree-----	VIe	---	---	---	---	---	---	---
Wedowee-----	IVe	---	60	---	---	---	---	---
WcE:								
Wake-----	VIIs	---	---	---	---	---	2.5	---
Wateree-----	VIIe	---	---	---	---	---	---	---
WdE:								
Wateree-----	VIIe	---	---	---	---	---	---	---
Rion-----	VIe	---	---	---	---	---	---	---
Wedowee-----	VIe	---	---	---	---	---	---	---
WeB----- Wedowee	IIe	---	150	---	40	80	---	---
WeC----- Wedowee	IIIe	---	75	---	---	---	---	---
WeD----- Wedowee	IVe	---	60	---	---	---	---	---
WuC**:								
Wedowee-----	IIIe	---	---	---	---	---	---	---
Urban land-----	VIIIIs	---	---	---	---	---	---	---
Udorthents-----	VIe	---	---	---	---	---	---	---
WwB:								
Winnsboro-----	IIe	---	90	---	35	45	8.5	---
Wilkes-----	IVe	1,700	65	---	25	35	7.5	4.5
WwD:								
Winnsboro-----	IVe	---	75	---	25	25	8.0	---
Wilkes-----	VIe	---	---	---	---	---	7.0	4.2

See footnotes at end of table.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Soil name and map symbol	Land capability	Tobacco	Corn	Corn silage	Soybeans	Wheat	Pasture	Grass- legume hay
		<u>Lbs</u>	<u>Bu</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>AUM*</u>	<u>Tons</u>
WwE:								
Winnsboro-----	VIe	---	---	---	---	---	7.5	---
Wilkes-----	VIIe	---	---	---	---	---	6.5	3.9

* Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

Table 6.—Capability Classes and Subclasses

(Miscellaneous areas are excluded. Absence of an entry indicates no acreage)

Class	Total acreage	Major management concerns (Subclass)			
		Erosion (e)	Wetness (w)	Soil problem (s)	Climate (c)
		<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>
I	342	---	---	---	---
II	144,378	138,840	5,538	---	---
III	77,572	77,202	370	---	---
IV	48,329	20,338	17,276	10,715	---
V	827	---	827	---	---
VI	36,034	13,693	8,476	13,865	---
VII	2,468	2,468	---	---	---
VIII	729	---	---	729	---

Table 7.—Woodland Management and Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available)

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant ³
		Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Wind-throw hazard	Common trees	Site index ¹	Volume ² Cu ft/ ac/yr	
AaA----- Altavista	9A	Slight	Slight	Slight	Slight	Loblolly pine-----	96	145	Loblolly pine.
						White oak-----	---	---	
						Shortleaf pine-----	---	---	
						Sweetgum-----	97	128	
						Red maple-----	---	---	
						Yellow-poplar-----	97	102	
						Southern red oak----	---	---	
						Water oak-----	---	---	
ApB----- Appling	8A	Slight	Slight	Slight	Slight	Loblolly pine-----	84	118	Loblolly pine, shortleaf pine.
						Shortleaf pine-----	63	95	
						Virginia pine-----	77	118	
						Scarlet oak-----	---	---	
						White oak-----	---	---	
						Yellow-poplar-----	81	73	
						Sweetgum-----	---	---	
						Southern red oak----	---	---	
CaB, CaC----- Cecil	8A	Slight	Slight	Slight	Slight	Loblolly pine-----	83	116	Loblolly pine, shortleaf pine.
						Shortleaf pine-----	67	103	
						Virginia pine-----	71	110	
						White oak-----	78	60	
						Northern red oak----	81	63	
						Southern red oak----	79	61	
						Post oak-----	---	---	
						Scarlet oak-----	81	63	
CeB2----- Cecil	7C	Slight	Moderate	Moderate	Slight	Loblolly pine-----	77	105	Loblolly pine, shortleaf pine.
						Shortleaf pine-----	62	92	
						Virginia pine-----	68	105	
						White oak-----	67	49	
ChA ⁴ : Chewacla----	7W	Slight	Moderate	Slight	Moderate	Yellow-poplar-----	96	100	Yellow-poplar, loblolly pine, sweetgum, American sycamore, green ash.
						Loblolly pine-----	95	142	
						Sweetgum-----	100	138	
						Water oak-----	90	86	
						Eastern cottonwood--	---	---	
						Green ash-----	78	46	
						Southern red oak----	---	---	
						Blackgum-----	---	---	
						Red maple-----	---	---	
						Willow oak-----	90	86	
						American beech-----	---	---	
American sycamore----	97	116							

See footnotes at end of table.

Table 7.-Woodland Management and Productivity-Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant ³
		Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Wind-throw hazard	Common trees	Site index ¹	Volume ² Cu ft/ ac/yr	
ChA ⁴ : Wehadkee----	8W	Slight	Severe	Moderate	Moderate	Yellow-poplar----- Sweetgum----- Loblolly pine----- Willow oak----- Water oak----- Green ash----- White ash----- American sycamore--- River birch-----	100 97 93 94 94 89 --- --- ---	107 128 138 91 91 64 --- ---	Yellow-poplar, green ash, sweetgum, bald cypress.
DuA----- Duplin	9W	Slight	Moderate	Moderate	-----	Loblolly pine----- Sweetgum----- Blackgum----- Southern red oak---- White oak----- Yellow-poplar-----	90 --- --- --- --- ---	131 --- --- --- --- ---	Loblolly pine, yellow-poplar, American sycamore, sweetgum.
GeB, GeC----- Georgeville	8A	Slight	Slight	Slight	Slight	Loblolly pine----- Shortleaf pine----- White oak----- Scarlet oak----- Southern red oak----	81 66 72 70 72	112 101 54 52 54	Loblolly pine, shortleaf pine.
GgC, GhB----- Georgeville	8A	Slight	Slight	Slight	Slight	Loblolly pine----- Shortleaf pine----- White oak----- Scarlet oak----- Southern red oak---- Virginia pine----- Hickory-----	81 66 72 70 72 --- ---	112 101 54 52 54 --- ---	Loblolly pine, shortleaf pine.
GkB2----- Georgeville	8C	Slight	Slight	Slight	Slight	Loblolly pine-----	81	112	Loblolly pine.
GmD ⁴ : Georgeville	8A	Slight	Slight	Slight	Slight	Loblolly pine----- Shortleaf pine----- White oak----- Scarlet oak----- Southern red oak---- Virginia pine----- Hickory-----	81 66 72 70 72 --- ---	112 101 54 52 54 --- ---	Loblolly pine, shortleaf pine.
Montonia----	8D	Slight	Slight	Slight	Moderate	Loblolly pine----- Shortleaf pine----- Virginia pine----- White oak----- Hickory-----	82 66 --- 70 ---	114 101 --- 52 ---	Loblolly pine, shortleaf pine.

See footnotes at end of table.

Table 7.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant ³
		Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Wind-throw hazard	Common trees	Site index ¹	Volume ² Cu ft/ ac/yr	
GmE ⁴ : Georgeville	8R	Moderate	Moderate	Slight	Slight	Loblolly pine----- Longleaf pine----- Shortleaf pine----- White oak----- Scarlet oak----- Southern red oak---- Virginia pine----- Hickory-----	81 --- 66 72 70 72 --- ---	112 --- 101 54 52 54 ---	Loblolly pine, shortleaf pine.
Montonia----	8R	Moderate	Moderate	Slight	Moderate	Loblolly pine----- Shortleaf pine----- Virginia pine----- White oak----- Hickory-----	82 66 --- 70 ---	114 101 --- 52 ---	Loblolly pine, shortleaf pine.
HeB----- Helena	8A	Slight	Slight	Slight	Slight	Loblolly pine----- Shortleaf pine----- White oak----- Yellow-poplar----- Sweetgum----- Northern red oak---- Southern red oak---- Black oak----- Hickory----- Virginia pine----- Willow oak----- American elm-----	84 66 73 --- --- --- 73 --- --- --- --- ---	118 101 55 --- --- --- 55 --- --- --- --- ---	Loblolly pine, shortleaf pine.
HrB, HrC----- Herndon	8A	Slight	Slight	Slight	Slight	Loblolly pine----- Shortleaf pine----- White oak----- Southern red oak----	81 66 68 68	112 101 50 50	Loblolly pine.
PaC2, PaD2--- Pacolet	6C	Slight	Moderate	Moderate	Slight	Loblolly pine----- Shortleaf pine----- Yellow-poplar-----	70 --- 80	93 --- 71	Loblolly pine.
RaA ⁴ : Rains-----	9W	Slight	Moderate	Moderate	Severe	Loblolly pine----- Sweetgum-----	90 90	131 106	Loblolly pine, sweetgum.
Toisnot-----	9W	Slight	Moderate	Moderate	Severe	Loblolly pine----- Sweetgum-----	90 ---	131 ---	Loblolly pine, sweetgum.
ReD ⁴ : Rion-----	8A	Slight	Slight	Slight	Slight	Loblolly pine----- Post oak----- Shortleaf pine----- Southern red oak---- Sweetgum----- White oak----- Yellow-poplar----- Hickory----- Northern red oak----	80 --- --- --- --- --- --- --- ---	110 --- --- --- --- --- --- ---	Loblolly pine, shortleaf pine.

See footnotes at end of table.

Table 7.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordi- nation symbol	Management concerns				Potential productivity			Trees to plant ³
		Erosion hazard	Equip- ment limita- tion	Seedling mortal- ity	Wind- throw hazard	Common trees	Site index ¹	Volume ² Cu ft/ ac/yr	
ReD ⁴ : Wateree-----	7A	Slight	Slight	Slight	Moderate	Loblolly pine----- Shortleaf pine----- Southern red oak---- Yellow-poplar----- Virginia pine----- White oak-----	77 --- --- --- --- ---	105 --- --- --- --- ---	Loblolly pine.
Wedowee-----	8A	Slight	Slight	Slight	Slight	Loblolly pine----- Virginia pine----- Shortleaf pine----- Southern red oak---- Northern red oak---- White oak-----	87 --- 68 74 --- 74	125 --- 106 56 --- 56	Loblolly pine, shortleaf pine.
RmA ⁴ : Riverview---	11A	Slight	Slight	Slight	Slight	Loblolly pine----- Yellow-poplar----- Sweetgum-----	100 110 100	154 124 138	Loblolly pine, yellow-poplar, sweetgum, eastern cottonwood, American sycamore.
Buncombe-----	9S	Slight	Moderate	Moderate	Slight	Loblolly pine----- American sycamore--- Sweetgum----- Yellow-poplar----- Northern red oak---- Southern red oak---- Hickory----- Elm----- River birch-----	90 --- --- --- --- --- --- --- ---	131 --- --- --- --- --- --- --- ---	Loblolly pine, yellow-poplar, American sycamore, eastern cottonwood.
RoA ⁴ : Roanoke-----	10W	Slight	Severe	Severe	Slight	Loblolly pine----- Sweetgum----- Willow oak----- White oak-----	98 90 --- ---	149 106 --- ---	Loblolly pine, sweetgum, yellow- poplar.
Wahee-----	9W	Slight	Moderate	Moderate	Slight	Loblolly pine----- Sweetgum----- Blackgum----- Water oak----- Swamp chestnut oak-- Willow oak----- Southern red oak----	86 90 --- --- --- --- ---	123 106 --- --- --- --- ---	Loblolly pine.
StA----- State	9A	Slight	Slight	Slight	Slight	Loblolly pine----- Southern red oak---- Yellow-poplar----- Hickory----- American beech----- White oak-----	86 85 100 --- --- ---	123 67 107 --- --- ---	Loblolly pine.

See footnotes at end of table.

Table 7.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant ³
		Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Wind-throw hazard	Common trees	Site index ¹	Volume ² Cu ft/ ac/yr	
TaD----- Tatum	7A	Slight	Slight	Slight	Slight	Loblolly pine----- Northern red oak----- Virginia pine----- Yellow-poplar-----	75 --- --- ---	101 --- --- ---	Loblolly pine.
TaE----- Tatum	7R	Moderate	Moderate	Slight	Slight	Loblolly pine----- Northern red oak----- Virginia pine----- Yellow-poplar-----	75 --- --- ---	101 --- --- ---	Loblolly pine.
VaB, VaC----- Vance	7A	Slight	Slight	Slight	Slight	Loblolly pine----- Shortleaf pine----- White oak----- Northern red oak----- Hickory----- Virginia pine----- Yellow-poplar----- Southern red oak----- Sweetgum-----	73 53 58 67 --- --- --- --- ---	98 74 41 49 --- --- --- --- ---	Loblolly pine.
VgB, VnB, VnC Varina	8A	Slight	Slight	Slight	Slight	Loblolly pine----- Southern red oak----- White oak----- Hickory-----	85 --- --- ---	120 --- --- ---	Loblolly pine.
WaB ⁴ : Wake-----	6D	Slight	Slight	Moderate	Severe	Loblolly pine----- Shortleaf pine----- Virginia pine----- Post oak----- Hickory----- Northern red oak-----	69 --- --- --- --- ---	91 --- --- --- --- ---	Loblolly pine.
Saw-----	7D	Slight	Slight	Slight	Moderate	Loblolly pine----- Shortleaf pine----- Virginia pine----- White oak----- Northern red oak----- Hickory----- Post oak-----	76 --- --- --- --- --- ---	103 --- --- --- --- --- ---	Loblolly pine.
Wedowee-----	8A	Slight	Slight	Slight	Slight	Loblolly pine----- Virginia pine----- Shortleaf pine----- Southern red oak----- Northern red oak----- White oak-----	87 --- 68 74 --- 74	125 --- 106 56 --- 56	Loblolly pine, shortleaf pine.
WbD ⁴ : Wake-----	6D	Slight	Slight	Moderate	Severe	Loblolly pine----- Shortleaf pine----- Virginia pine----- Post oak----- Hickory----- Northern red oak-----	69 --- --- --- --- ---	91 --- --- --- --- ---	Loblolly pine.

See footnotes at end of table.

Table 7.-Woodland Management and Productivity--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant ³
		Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Wind-throw hazard	Common trees	Site index ¹	Volume ² Cu ft/ ac/yr	
WbD ⁴ : Wateree-----	7A	Slight	Slight	Slight	Moderate	Loblolly pine----- Shortleaf pine----- Southern red oak---- Yellow-poplar----- Virginia pine----- White oak-----	77 --- --- --- --- ---	105 --- --- --- --- ---	Loblolly pine.
Wedowee-----	8A	Slight	Slight	Slight	Slight	Loblolly pine----- Virginia pine----- Shortleaf pine----- Southern red oak---- Northern red oak---- White oak-----	87 --- 68 74 --- 74	125 --- 106 56 --- 56	Loblolly pine, shortleaf pine.
WcE ⁴ : Wake-----	6D	Moderate	Moderate	Moderate	Severe	Loblolly pine----- Shortleaf pine----- Virginia pine----- Post oak----- Hickory----- Northern red oak----	69 --- --- --- --- ---	91 --- --- --- --- ---	Loblolly pine.
Wateree-----	7R	Moderate	Moderate	Moderate	Moderate	Loblolly pine----- Shortleaf pine----- Southern red oak---- Yellow-poplar----- Virginia pine----- White oak-----	77 --- --- --- --- ---	105 --- --- --- --- ---	Loblolly pine.
WdE ⁴ : Wateree-----	7R	Moderate	Moderate	Moderate	Moderate	Loblolly pine----- Shortleaf pine----- Southern red oak---- Yellow-poplar----- Virginia pine----- White oak-----	77 --- --- --- --- ---	105 --- --- --- --- ---	Loblolly pine.
Rion-----	8R	Moderate	Moderate	Slight	Slight	Loblolly pine----- Post oak----- Shortleaf pine----- Southern red oak---- Sweetgum----- White oak----- Yellow-poplar----- Hickory----- Northern red oak----	80 --- --- --- --- --- --- --- ---	110 --- --- --- --- --- --- --- ---	Loblolly pine, shortleaf pine.
Wedowee-----	8R	Moderate	Moderate	Slight	Slight	Loblolly pine----- Virginia pine----- Shortleaf pine----- Southern red oak---- Northern red oak---- White oak-----	87 --- 68 74 70 74	125 --- 106 56 52 56	Loblolly pine, shortleaf pine.

See footnotes at end of table.

Table 7.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity			Trees to plant ³
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index ¹	Volume ² Cu ft/ ac/yr	
WeB, WeC, WeD Wedowee	8A	Slight	Slight	Slight	Slight	Loblolly pine-----	87	125	Loblolly pine, shortleaf pine.
						Virginia pine-----	---	---	
						Shortleaf pine-----	68	106	
						Southern red oak----	74	56	
						Northern red oak----	70	52	
WwB ⁴ , WwD ⁴ : Winnsboro---	8A	Slight	Moderate	Slight	Slight	Loblolly pine-----	82	114	Eastern redcedar, loblolly pine.
						Shortleaf pine-----	---	---	
						Virginia pine-----	---	---	
						Post oak-----	---	---	
						Southern red oak----	---	---	
						Sweetgum-----	---	---	
						White oak-----	62	45	
Yellow-poplar-----	---	---							
Wilkes-----	6D	Slight	Slight	Slight	-----	Loblolly pine-----	62	79	Loblolly pine.
						Post oak-----	---	---	
						Shortleaf pine-----	---	---	
						Southern red oak----	---	---	
						Sweetgum-----	---	---	
						White oak-----	---	---	
						Hickory-----	---	---	
Virginia pine-----	---	---							
WwE ⁴ : Winnsboro---	8R	Moderate	Moderate	Slight	Slight	Loblolly pine-----	82	114	Eastern redcedar, loblolly pine.
						Shortleaf pine-----	---	---	
						Virginia pine-----	---	---	
						Post oak-----	---	---	
						Southern red oak----	---	---	
						Sweetgum-----	---	---	
						White oak-----	62	45	
Yellow-poplar-----	---	---							
Wilkes-----	6R	Moderate	Moderate	Slight	-----	Loblolly pine-----	62	79	Loblolly pine.
						Post oak-----	---	---	
						Shortleaf pine-----	---	---	
						Southern red oak----	---	---	
						Sweetgum-----	---	---	
						White oak-----	---	---	
						Hickory-----	---	---	
Virginia pine-----	---	---							

¹ Site indices were assigned using available plot data. Where available plot data was insufficient, indices for some species were derived from a comparison curve (Olson & Della-Bianca, USFS, SEFES Pap. 104). Where no data existed, the site index was based on data from soils with similar properties.

² Volume is the yield in cubic feet per acre per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

³ If hardwoods are desired on a forest site, the natural reproduction (seeds and sprouts) of acceptable species should be used. Special site preparation techniques may be needed. Planting hardwoods on a specific site should be based on the recommendations of a forester.

⁴ See description of the map unit for composition and behavior characteristics of the map unit.

Table 8.—Recreational Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe")

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AaA----- Altavista	Severe: flooding, too acid.	Severe: too acid.	Moderate: wetness.	Moderate: wetness.	Severe: too acid.
ApB----- Appling	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Slight.
CaB----- Cecil	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Slight.
CaC----- Cecil	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
CeB2----- Cecil	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Slight.
ChA*: Chewacla-----	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Wehadkee-----	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
DuA----- Duplin	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Slight-----	Slight.
GeB----- Georgeville	Slight-----	Slight-----	Moderate: slope, small stones.	Severe: erodes easily.	Slight.
GeC----- Georgeville	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
GgC----- Georgeville	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight-----	Moderate: small stones, large stones.
GhB----- Georgeville	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight-----	Moderate: small stones, large stones.
GkB2----- Georgeville	Slight-----	Slight-----	Moderate: slope.	Severe: erodes easily.	Slight.
GmD*: Georgeville-----	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight-----	Moderate: small stones, large stones.

See footnote at end of table.

Table 8.—Recreational Development—Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
GmD*: Montonia-----	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight-----	Moderate: small stones, large stones, depth to rock.
GmE*: Georgeville-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
Montonia-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Moderate: small stones, large stones, depth to rock.
HeB----- Helena	Severe: too acid.	Severe: too acid.	Severe: too acid.	Moderate: wetness.	Severe: too acid.
HrB----- Herndon	Slight-----	Slight-----	Moderate: slope.	Severe: erodes easily.	Slight.
HrC----- Herndon	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
PaC2, PaD2----- Pacolet	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
PuC*: Pacolet-----	Slight-----	Slight-----	Severe: slope.	Slight-----	Slight.
Urban land-----	Variable-----	Variable-----	Variable-----	Variable-----	Variable.
RaA*: Rains-----	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Toisnot-----	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
ReD*: Rion-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: droughty, slope.
Wateree-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: droughty, slope, depth to rock.
Wedowee-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
RmA*: Riverview-----	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
Buncombe-----	Severe: flooding.	Moderate: flooding, too sandy.	Severe: flooding.	Moderate: too sandy, flooding.	Severe: droughty, flooding.

See footnote at end of table.

Table 8.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
RoA*: Roanoke-----	Severe: flooding, wetness, too acid.	Severe: wetness, too acid.	Severe: wetness, too acid.	Severe: wetness.	Severe: too acid, wetness.
Wahee-----	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
RwC*: Rock outcrop-----	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Slight-----	Severe: depth to rock.
Wake-----	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: too sandy.	Severe: small stones, droughty.
StA----- State	Severe: flooding.	Slight-----	Slight-----	Slight-----	Slight.
TaD----- Tatum	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
TaE----- Tatum	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Ud----- Udorthents	Variable-----	Variable-----	Variable-----	Variable-----	Variable.
VaB----- Vance	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones.	Slight-----	Slight.
VaC----- Vance	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
VgB----- Varina	Moderate: small stones, percs slowly.	Moderate: small stones, percs slowly.	Severe: small stones.	Slight-----	Moderate: small stones, droughty.
VnB----- Varina	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight-----	Moderate: droughty.
VnC----- Varina	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight-----	Moderate: droughty, slope.
WaB*: Wake-----	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Moderate: too sandy.	Severe: small stones, droughty.
Saw-----	Slight-----	Slight-----	Moderate: slope, small stones, depth to rock.	Slight-----	Moderate: depth to rock.

See footnote at end of table.

Table 8.—Recreational Development—Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
WaB*: Wedowee-----	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Slight.
WbD*: Wake-----	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: too sandy.	Severe: small stones, droughty.
Wateree-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: droughty, slope, depth to rock.
Wedowee-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
WcE*: Wake-----	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: too sandy, slope.	Severe: small stones, droughty, slope.
Wateree-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
WdE*: Wateree-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Rion-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Wedowee-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
WeB----- Wedowee	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Slight.
WeC, WeD----- Wedowee	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
WuC*: Wedowee-----	Slight-----	Slight-----	Severe: slope.	Slight-----	Slight.
Urban land-----	Variable-----	Variable-----	Variable-----	Variable-----	Variable.
Udorthents-----	Variable-----	Variable-----	Variable-----	Variable-----	Variable.
WwB*: Winnsboro-----	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight-----	Slight.
Wilkes-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight-----	Severe: depth to rock.

See footnote at end of table.

Table 8.—Recreational Development—Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
WwD*:					
Winnsboro-----	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight-----	Moderate: slope.
Wilkes-----	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Slight-----	Severe: depth to rock.
WwE*:					
Winnsboro-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Wilkes-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: slope, depth to rock.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 9.--Wildlife Habitat

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AaA----- Altavista	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
ApB----- Appling	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
CaB----- Cecil	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CaC----- Cecil	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CeB2----- Cecil	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
ChA*: Chewacla-----	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
Wehadkee-----	Very poor.	Poor	Poor	Fair	Fair	Good	Fair	Poor	Fair	Fair.
DuA----- Duplin	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
GeB, GeC, GgC, GhB Georgeville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
GkB2----- Georgeville	Fair	Fair	Fair	Good	Fair	Very poor.	Very poor.	Fair	Good	Very poor.
GmD*: Georgeville-----	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Montonia-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
GmE*: Georgeville-----	Very poor.	Very poor.	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Montonia-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
HeB----- Helena	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
HrB----- Herndon	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
HrC----- Herndon	Fair	Good	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
PaC2----- Pacolet	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.

See footnote at end of table.

Table 9.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
PaD2----- Pacolet	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.
PuC*: Pacolet-----	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Urban land.										
RaA*: Rains-----	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Good	Good.
Toisnot-----	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
ReD*: Rion-----	Poor	Fair	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Wateree-----	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Wedowee-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
RmA*: Riverview-----	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Buncombe-----	Very poor.	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
RoA*: Roanoke-----	Poor	Poor	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Wahee-----	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
RwC*: Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Wake-----	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
StA----- State	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
TaD----- Tatum	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
TaE----- Tatum	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Ud----- Udorthents	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
VaB----- Vance	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
VaC----- Vance	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

Table 9.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
VgB, VnB----- Varina	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
VnC----- Varina	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
WaB*: Wake-----	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Saw-----	Fair	Good	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
Wedowee-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
WbD*: Wake-----	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Wateree-----	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Wedowee-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
WcE*: Wake-----	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.
Wateree-----	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
WdE*: Wateree-----	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Rion-----	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Wedowee-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
WeB----- Wedowee	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WeC, WeD----- Wedowee	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
WuC*: Wedowee-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Urban land.										
Udorthents-----	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.

See footnote at end of table.

Table 9.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
WwB*:										
Winnsboro-----	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Wilkes-----	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
WwD*:										
Winnsboro-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Wilkes-----	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
WwE*:										
Winnsboro-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Wilkes-----	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 10.—Building Site Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AaA----- Altavista	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: low strength, wetness, flooding.	Severe: too acid.
ApB----- Appling	Moderate: too clayey.	Slight-----	Slight-----	Moderate: slope.	Moderate: low strength.	Slight.
CaB----- Cecil	Moderate: too clayey.	Slight-----	Slight-----	Moderate: slope.	Moderate: low strength.	Slight.
CaC----- Cecil	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
CeB2----- Cecil	Moderate: too clayey.	Slight-----	Slight-----	Moderate: slope.	Moderate: low strength.	Slight.
ChA*: Chewacla-----	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
Wehadkee-----	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
DuA----- Duplin	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: low strength.	Slight.
GeB----- Georgeville	Moderate: too clayey.	Slight-----	Slight-----	Moderate: slope.	Moderate: low strength.	Slight.
GeC----- Georgeville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
GgC----- Georgeville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: small stones, large stones.
GhB----- Georgeville	Moderate: too clayey.	Slight-----	Slight-----	Moderate: slope.	Moderate: low strength.	Moderate: small stones, large stones.
GkB2----- Georgeville	Moderate: too clayey.	Slight-----	Slight-----	Moderate: slope.	Moderate: low strength.	Slight.
GmD*: Georgeville-----	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: small stones, large stones.

See footnote at end of table.

Table 10.—Building Site Development—Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
GmD*: Montonia-----	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope.	Moderate: small stones, large stones, depth to rock.
GmE*: Georgeville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Montonia-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: small stones, large stones, depth to rock.
HeB----- Helena	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: too acid.
HrB----- Herndon	Moderate: too clayey.	Slight-----	Slight-----	Moderate: slope.	Moderate: low strength.	Slight.
HrC----- Herndon	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
PaC2, PaD2----- Pacolet	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
PuC*: Pacolet-----	Moderate: too clayey.	Slight-----	Slight-----	Moderate: slope.	Moderate: low strength.	Slight.
Urban land-----	Variable-----	Variable-----	Variable-----	Variable-----	Variable-----	Variable.
RaA*: Rains-----	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Toisnot-----	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
ReD*: Rion-----	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
Wateree-----	Severe: cutbanks cave.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope, depth to rock.
Wedowee-----	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.

See footnote at end of table.

Table 10.—Building Site Development—Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
RmA*:						
Riverview-----	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Buncombe-----	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: droughty, flooding.
RoA*:						
Roanoke-----	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: too acid, wetness.
Wahee-----	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
RwC*:						
Rock outcrop----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Wake-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: small stones, droughty.
StA-----	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: low strength, flooding.	Slight.
TaD-----	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
TaE-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Ud-----	Variable-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: shrink-swell.	Variable.
VaB-----	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
VaC-----	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
VgB-----	Moderate: too clayey, wetness.	Slight-----	Moderate: wetness.	Moderate: slope.	Moderate: low strength.	Moderate: small stones, droughty.
VnB-----	Moderate: too clayey, wetness.	Slight-----	Moderate: wetness.	Moderate: slope.	Moderate: low strength.	Moderate: droughty.

See footnote at end of table.

Table 10.—Building Site Development—Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
VnC----- Varina	Moderate: too clayey, wetness, slope.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: droughty, slope.
WaB*: Wake-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: small stones, droughty.
Saw-----	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock, low strength.	Moderate: depth to rock.
Wedowee-----	Moderate: too clayey.	Slight-----	Slight-----	Moderate: slope.	Moderate: low strength.	Slight.
WbD*: Wake-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: small stones, droughty.
Wateree-----	Severe: cutbanks cave.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope, depth to rock.
Wedowee-----	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
WcE*: Wake-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: small stones, droughty, slope.
Wateree-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
WdE*: Wateree-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Rion-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Wedowee-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
WeB----- Wedowee	Moderate: too clayey.	Slight-----	Slight-----	Moderate: slope.	Moderate: low strength.	Slight.
WeC, WeD----- Wedowee	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.

See footnote at end of table.

Table 10.—Building Site Development—Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
WuC*:						
Wedowee-----	Moderate: too clayey.	Slight-----	Slight-----	Moderate: slope.	Moderate: low strength.	Slight.
Urban land-----	Variable-----	Variable-----	Variable-----	Variable-----	Variable-----	Variable.
Udorthents-----	Variable-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: shrink-swell.	Variable.
WwB*:						
Winnsboro-----	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Slight.
Wilkes-----	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: low strength.	Severe: depth to rock.
WwD*:						
Winnsboro-----	Moderate: too clayey, slope,	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: slope.
Wilkes-----	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Severe: low strength.	Severe: depth to rock.
WwE*:						
Winnsboro-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.
Wilkes-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope, depth to rock.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 11.—Sanitary Facilities

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "fair," and other terms. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AaA----- Altavista	Severe: wetness.	Severe: wetness.	Severe: wetness, too acid.	Severe: wetness.	Poor: too acid.
ApB----- Appling	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----	Fair: too clayey, hard to pack.
CaB----- Cecil	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----	Fair: too clayey, hard to pack.
CaC----- Cecil	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
CeB2----- Cecil	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----	Fair: too clayey, hard to pack.
ChA*: Chewacla-----	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: hard to pack, wetness.
Wehadkee-----	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness, thin layer.
DuA----- Duplin	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, hard to pack, wetness.
GeB----- Georgeville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----	Fair: too clayey, hard to pack.
GeC, GgC----- Georgeville	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
GhB, GkB2----- Georgeville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----	Fair: too clayey, hard to pack.
GmD*: Georgeville-----	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.

See footnote at end of table.

Table 11.—Sanitary Facilities—Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
GmD*: Montonia-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, small stones.
GmE*: Georgeville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Montonia-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
HeB----- Helena	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey, too acid.	Moderate: wetness.	Poor: too clayey, hard to pack, too acid.
HrB----- Herndon	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----	Fair: too clayey, hard to pack.
HrC----- Herndon	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
PaC2, PaD2----- Pacolet	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: too clayey, slope.
PuC*: Pacolet-----	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Fair: too clayey.
Urban land-----	Variable-----	Variable-----	Variable-----	Variable-----	Variable.
RaA*: Rains-----	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Toisnot-----	Severe: cemented pan, wetness.	Severe: seepage, cemented pan.	Severe: wetness.	Severe: cemented pan, wetness.	Poor: cemented pan, wetness.
ReD*: Rion-----	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
Wateree-----	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock.
Wedowee-----	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: small stones, slope.

See footnote at end of table.

Table 11.—Sanitary Facilities—Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
RmA*: Riverview-----	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Fair: thin layer.
Buncombe-----	Severe: flooding, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, too sandy.	Severe: flooding, seepage.	Poor: seepage, too sandy.
RoA*: Roanoke-----	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
Wahee-----	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
RwC*: Rock outcrop-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Wake-----	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, seepage, small stones.
StA----- State	Moderate: flooding, wetness, percs slowly.	Severe: seepage.	Severe: seepage, wetness.	Moderate: flooding, wetness.	Fair: too clayey, thin layer.
TaD----- Tatum	Moderate: depth to rock, percs slowly, slope.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock, slope.	Poor: too clayey, hard to pack.
TaE----- Tatum	Severe: slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Ud----- Udorthents	Variable-----	Variable-----	Variable-----	Slight-----	Variable.
VaB----- Vance	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----	Poor: too clayey, hard to pack.
VaC----- Vance	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
VgB----- Varina	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight-----	Fair: too clayey, hard to pack, small stones.

See footnote at end of table.

Table 11.—Sanitary Facilities—Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
VnB----- Varina	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight-----	Fair: too clayey, hard to pack.
VnC----- Varina	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
WaB*: Wake-----	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, seepage, small stones.
Saw-----	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock.
WaB*: Wedowee-----	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Fair: small stones.
WbD*: Wake-----	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, seepage, small stones.
Wateree-----	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock.
Wedowee-----	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: small stones, slope.
WcE*: Wake-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, seepage, small stones.
Wateree-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, slope.
WdE*: Wateree-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, slope.
Rion-----	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.

See footnote at end of table.

Table 11.—Sanitary Facilities—Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
WdE*: Wedowee-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
WeB----- Wedowee	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Fair: small stones.
WeC, WeD----- Wedowee	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: small stones, slope.
WuC*: Wedowee-----	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Fair: small stones.
Urban land-----	Variable-----	Variable-----	Variable-----	Variable-----	Variable.
Udorthents-----	Variable-----	Variable-----	Variable-----	Slight-----	Variable.
WwB*: Winnsboro-----	Severe: percs slowly.	Moderate: depth to rock, slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock.	Poor: too clayey, hard to pack.
Wilkes-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
WwD*: Winnsboro-----	Severe: percs slowly.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock, slope.	Poor: too clayey, hard to pack.
Wilkes-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
WwE*: Winnsboro-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Wilkes-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: depth to rock, too clayey, hard to pack.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 12.—Construction Materials

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
AaA----- Altavista	Fair: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
ApB----- Appling	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CaB, CaC, CeB2----- Cecil	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
ChA*: Chewacla-----	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Wehadkee-----	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
DuA----- Duplin	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
GeB, GeC, GgC, GhB, GkB2----- Georgeville	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
GmD*: Georgeville-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Montonia-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
GmE*: Georgeville-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
Montonia-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
HeB----- Helena	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, too acid.
HrB, HrC----- Herndon	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
PaC2, PaD2----- Pacolet	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.

See footnote at end of table.

Table 12.—Construction Materials—Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
PuC*: Pacolet-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Urban land-----	Variable-----	Variable-----	Variable-----	Variable.
RaA*: Rains-----	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Toisnot-----	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
ReD*: Rion-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
Wateree-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Wedowee-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
RmA*: Riverview-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer.
Buncombe-----	Good-----	Probable-----	Improbable: too sandy.	Poor: too sandy.
RoA*: Roanoke-----	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness, too acid.
Wahee-----	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
RwC*: Rock outcrop-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock.
Wake-----	Poor: depth to rock.	Improbable: thin layer.	Improbable: thin layer.	Poor: depth to rock, area reclaim, small stones.
StA----- State	Good-----	Probable-----	Improbable: too sandy.	Fair: too clayey, area reclaim.
TaD, TaE----- Tatum	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, area reclaim.

See footnote at end of table.

Table 12.—Construction Materials—Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Ud----- Udorthents	Fair: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Variable.
VaB, VaC----- Vance	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
VgB----- Varina	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
VnB, VnC----- Varina	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
WaB*: Wake-----	Poor: depth to rock.	Improbable: thin layer.	Improbable: thin layer.	Poor: depth to rock, area reclaim, small stones.
Saw-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
Wedowee-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
WbD*: Wake-----	Poor: depth to rock.	Improbable: thin layer.	Improbable: thin layer.	Poor: depth to rock, area reclaim, small stones.
Wateree-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Wedowee-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
WcE*: Wake-----	Poor: depth to rock.	Improbable: thin layer.	Improbable: thin layer.	Poor: depth to rock, area reclaim, small stones.
Wateree-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
WdE*: Wateree-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Rion-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Wedowee-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.

See footnote at end of table.

Table 12.—Construction Materials—Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
WeB, WeC, WeD----- Wedowee	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
WuC*: Wedowee-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Urban land-----	Variable-----	Variable-----	Variable-----	Variable.
Udorthents-----	Fair: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Variable.
WwB*, WwD*, WwE*: Winnsboro-----	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, area reclaim.
Wilkes-----	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, too clayey, small stones.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 13.--Water Management

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
AaA----- Altavista	Moderate: seepage.	Severe: piping, wetness.	Too acid-----	Wetness-----	Wetness, soil blowing.	Favorable.
ApB----- Appling	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope, fast intake.	Soil blowing---	Favorable.
CaB----- Cecil	Moderate: seepage, slope.	Severe: piping, hard to pack.	Deep to water	Slope, soil blowing.	Soil blowing---	Favorable.
CaC----- Cecil	Severe: slope.	Severe: piping, hard to pack.	Deep to water	Slope, soil blowing.	Slope, soil blowing.	Slope.
CeB2----- Cecil	Moderate: seepage, slope.	Severe: piping, hard to pack.	Deep to water	Slope-----	Favorable-----	Favorable.
ChA*: Chewacla-----	Moderate: seepage.	Severe: piping, hard to pack, wetness.	Flooding-----	Wetness, flooding.	Wetness-----	Wetness.
Wehadkee-----	Moderate: seepage.	Severe: piping, wetness.	Flooding-----	Wetness, flooding.	Wetness-----	Wetness.
DuA----- Duplin	Slight-----	Moderate: piping, hard to pack, wetness.	Favorable-----	Wetness-----	Wetness, soil blowing.	Favorable.
GeB----- Georgeville	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
GeC----- Georgeville	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
GgC----- Georgeville	Severe: slope.	Severe: hard to pack.	Deep to water	Slope-----	Slope-----	Slope.
GhB----- Georgeville	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope-----	Favorable-----	Favorable.
GkB2----- Georgeville	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.

See footnote at end of table.

Table 13.--Water Management--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
GmD*, GmE*: Georgeville-----	Severe: slope.	Severe: hard to pack.	Deep to water	Slope-----	Slope-----	Slope.
Montonia-----	Severe: slope.	Severe: piping.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
HeB----- Helena	Moderate: slope.	Severe: hard to pack.	Percs slowly, slope, too acid.	Slope, wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
HrB----- Herndon	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
HrC----- Herndon	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
PaC2, PaD2----- Pacolet	Severe: slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
PuC*: Pacolet-----	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Soil blowing---	Favorable.
Urban land-----	Variable-----	Variable-----	Variable-----	Variable-----	Variable-----	Variable.
RaA*: Rains-----	Moderate: seepage.	Severe: piping, wetness.	Favorable-----	Wetness-----	Wetness-----	Wetness.
Toisnot-----	Moderate: cemented pan.	Severe: piping, wetness.	Percs slowly, cemented pan.	Wetness, droughty.	Cemented pan, erodes easily, wetness.	Wetness, erodes easily, droughty.
ReD*: Rion-----	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, droughty.	Slope, soil blowing.	Slope, droughty.
Wateree-----	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, droughty.	Slope, depth to rock, soil blowing.	Slope, droughty, depth to rock.
Wedowee-----	Severe: slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
RmA*: Riverview-----	Severe: seepage.	Severe: piping.	Deep to water	Flooding-----	Favorable-----	Favorable.
Buncombe-----	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.	Droughty, rooting depth.

See footnote at end of table.

Table 13.--Water Management--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
RoA*:						
Roanoke-----	Severe: seepage.	Severe: wetness.	Percs slowly, flooding, too acid.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Wahee-----	Slight-----	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness-----	Wetness, percs slowly.	Wetness, percs slowly.
RwC*:						
Rock outcrop----	Severe: depth to rock.	Slight-----	Deep to water	Slope, depth to rock.	Depth to rock	Depth to rock.
Wake-----	Severe: depth to rock.	Severe: seepage.	Deep to water	Slope, droughty, fast intake.	Depth to rock, too sandy.	Droughty, depth to rock.
StA-----	Severe: seepage.	Moderate: thin layer, piping.	Deep to water	Soil blowing---	Soil blowing---	Favorable.
TaD, TaE-----	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
Ud-----	Variable-----	Slight-----	Deep to water	Variable-----	Variable-----	Variable.
Udorthents						
VaB-----	Moderate: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly, soil blowing.	Percs slowly---	Percs slowly.
VaC-----	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly, soil blowing.	Slope, percs slowly.	Slope, percs slowly.
VaC-----	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly, soil blowing.	Slope, percs slowly.	Slope, percs slowly.
VgB-----	Moderate: seepage, slope.	Severe: piping, hard to pack.	Deep to water	Slope, droughty.	Soil blowing---	Slope, droughty.
VnB-----	Slight-----	Moderate: hard to pack.	Deep to water	Slope, droughty.	Soil blowing---	Droughty.
VnC-----	Slight-----	Moderate: hard to pack.	Deep to water	Slope, droughty.	Slope, soil blowing.	Slope, droughty.
WaB*:						
Wake-----	Severe: depth to rock.	Severe: seepage.	Deep to water	Slope, droughty, fast intake.	Depth to rock, too sandy.	Droughty, depth to rock.
Saw-----	Severe: seepage.	Severe: hard to pack.	Deep to water	Slope, droughty, depth to rock.	Depth to rock, soil blowing.	Droughty, depth to rock.
Wedowee-----	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Favorable-----	Favorable.

See footnote at end of table.

Table 13.--Water Management--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
WbD*:						
Wake-----	Severe: depth to rock, slope.	Severe: seepage.	Deep to water	Slope, droughty, fast intake.	Slope, depth to rock, too sandy.	Slope, droughty, depth to rock.
Wateree-----	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, droughty.	Slope, depth to rock, soil blowing.	Slope, droughty, depth to rock.
Wedowee-----	Severe: slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
WcE*:						
Wake-----	Severe: depth to rock, slope.	Severe: seepage.	Deep to water	Slope, droughty, fast intake.	Slope, depth to rock, too sandy.	Slope, droughty, depth to rock.
Wateree-----	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, droughty.	Slope, depth to rock, soil blowing.	Slope, droughty, depth to rock.
WdE*:						
Wateree-----	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, droughty.	Slope, depth to rock, soil blowing.	Slope, droughty, depth to rock.
Rion-----	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, droughty.	Slope, soil blowing.	Slope, droughty.
Wedowee-----	Severe: slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
WeB-----	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Favorable-----	Favorable.
Wedowee						
WeC, WeD-----	Severe: slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
Wedowee						
WuC*:						
Wedowee-----	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Favorable-----	Favorable.
Urban land-----	Variable-----	Variable-----	Variable-----	Variable-----	Variable-----	Variable.
Udorthents-----	Variable-----	Slight-----	Deep to water	Variable-----	Variable-----	Variable.
WwB*:						
Winnsboro-----	Moderate: depth to rock, slope.	Severe: thin layer.	Deep to water	Slope, percs slowly.	Percs slowly	Percs slowly.
Wilkes-----	Severe: depth to rock.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Depth to rock	Depth to rock.

See footnote at end of table.

Table 13.--Water Management--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
WwD*, WwE*: Winnsboro-----	Severe: slope.	Severe: thin layer.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
Wilkes-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 14.--Engineering Index Properties

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
AaA----- Altavista	0-16	Sandy loam-----	ML, CL-ML, SM, SC-SM	A-4	0	95-100	90-100	65-99	35-60	20-30	NP-7
	16-46	Clay loam, sandy clay loam, loam.	CL, CL-ML, SC, SC-SM	A-4, A-6, A-7	0	95-100	95-100	60-99	45-75	20-45	5-28
	46-62	Variable-----	---	---	---	---	---	---	---	---	---
ApB----- Appling	0-5	Loamy sand-----	SM, SC-SM	A-2	0-5	86-100	80-100	55-91	15-35	15-35	NP-7
	5-44	Sandy clay, clay loam, clay.	MH, ML, CL	A-7	0-5	95-100	90-100	70-95	51-80	41-74	15-30
	44-62	Sandy clay, clay loam, sandy clay loam.	SC, CL	A-4, A-6, A-7	0-5	95-100	85-100	70-90	40-75	30-50	8-22
CaB, CaC----- Cecil	0-8	Sandy loam-----	SM, SC-SM	A-2, A-4	0-5	84-100	80-100	67-90	26-42	15-30	NP-7
	8-50	Clay, clay loam	MH, ML, CH	A-7, A-5	0-5	97-100	92-100	72-100	55-95	41-80	9-37
	50-73	Variable-----	---	---	---	---	---	---	---	---	---
CeB2----- Cecil	0-3	Clay loam-----	SM, SC, CL, ML	A-4, A-6	0-5	75-100	75-100	68-95	38-81	21-40	3-17
	3-45	Clay, clay loam	MH, ML, CH	A-7, A-5	0-5	97-100	92-100	72-100	55-95	41-80	9-37
	45-60	Variable-----	---	---	---	---	---	---	---	---	---
ChA*: Chewacla-----	0-10	Loam-----	ML, CL, CL-ML	A-4, A-6, A-7	0	98-100	95-100	70-100	55-90	25-49	4-20
	10-16	Silt loam, silty clay loam, clay loam.	ML, CL	A-4, A-6, A-7	0	96-100	95-100	80-100	51-98	30-49	4-22
	16-28	Sandy clay loam, loam, sandy loam.	SM, SC-SM, ML, CL	A-4, A-7-6, A-6	0	96-100	95-100	60-100	36-70	20-45	2-15
	28-33	Silt loam, clay loam, silty clay loam.	ML, MH, CL, CH	A-4, A-6, A-7	0	85-100	75-100	60-100	51-98	22-61	4-28
	33-62	Variable-----	---	---	---	---	---	---	---	---	---
Wehadkee-----	0-14	Silt loam-----	CL, MH, ML, CH	A-6, A-7	0	100	98-100	85-100	51-98	30-58	10-24
	14-30	Silty clay loam, loam, sandy clay loam.	CL, CL-ML, ML, SC	A-6, A-7, A-4	0	100	99-100	85-100	45-98	25-58	6-25
	30-62	Variable-----	---	---	---	---	---	---	---	---	---
DuA----- Duplin	0-18	Sandy loam-----	SM, SC-SM	A-2, A-4	0	100	100	67-98	20-49	15-30	NP-7
	18-80	Sandy clay, clay loam, clay.	CL, CH, SC	A-6, A-7	0	100	98-100	80-100	45-75	40-65	13-35

See footnote at end of table.

Table 14.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
GeB, GeC----- Georgeville	0-8	Loam-----	ML	A-4, A-6	0-2	90-100	80-100	65-100	55-95	<40	NP-11
	8-15	Silty clay loam, clay loam.	CL, ML, CL-ML	A-6, A-7, A-4	0-1	90-100	90-100	85-100	70-98	30-49	8-20
	15-45	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	95-100	95-100	90-100	75-98	41-85	15-45
	45-62	Silty clay loam, loam, silt loam, clay loam.	ML, CL, CL-ML	A-4, A-6	0-5	90-100	90-100	65-100	51-95	<30	NP-12
GgC----- Georgeville	0-7	Gravelly loam---	GM, ML, SM	A-4	0-10	60-80	55-75	45-75	40-70	<40	NP-10
	7-26	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	95-100	95-100	90-100	75-98	41-85	15-35
	26-62	Silty clay loam, loam, silt loam.	ML, CL, CL-ML	A-4, A-6	0-5	90-100	90-100	65-100	51-95	<30	NP-12
GhB----- Georgeville	0-12	Gravelly loam---	GM, ML, SM	A-4	0-10	60-80	55-75	45-75	40-70	<40	NP-10
	12-48	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	95-100	95-100	90-100	75-98	41-85	15-35
	48-62	Silty clay loam, loam, silt loam, clay loam.	ML, CL, CL-ML	A-4, A-6	0-5	90-100	90-100	65-100	51-95	<30	NP-12
GkB2----- Georgeville	0-5	Clay loam-----	CL, ML	A-6, A-7, A-4	0-2	90-100	90-100	85-100	65-98	24-49	3-20
	5-47	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	95-100	95-100	90-100	75-98	41-85	15-45
	47-62	Silty clay loam, loam, silt loam.	ML, CL, CL-ML	A-4, A-6	0-5	90-100	90-100	65-100	51-95	<30	NP-12
GmD*, GmE*: Georgeville-----	0-12	Gravelly loam---	GM, ML, SM	A-4	0-10	60-80	55-75	45-75	40-70	<40	NP-10
	12-48	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	95-100	95-100	90-100	75-98	41-85	15-35
	48-62	Silty clay loam, loam, silt loam, clay loam.	ML, CL, CL-ML	A-4, A-6	0-5	90-100	90-100	65-100	51-95	<30	NP-12
Montonia-----	0-11	Channery loam---	ML, SM, GM	A-2-4, A-4	5-15	60-90	55-85	45-80	30-80	20-35	NP-10
	11-35	Channery clay loam, channery silt loam, loam, clay loam.	CL, ML	A-6, A-7	0-10	75-100	60-90	55-85	50-85	30-50	10-20
	35-42	Weathered bedrock	---	---	---	---	---	---	---	---	---
	42	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
HeB----- Helena	0-4	Sandy loam-----	SM, SC-SM, SC, ML	A-2, A-4	0-5	90-100	90-100	51-95	26-75	15-35	NP-10
	4-39	Clay loam, sandy clay, clay.	CH	A-7	0-5	95-100	95-100	73-97	56-86	50-85	24-50
	39-62	Variable-----	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 14.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
HrB, HrC----- Herndon	0-7	Loam-----	ML, CL, CL-ML	A-4, A-6	0-2	90-100	85-100	80-98	60-90	<36	NP-12
	7-40	Silty clay loam, silty clay, clay.	MH, ML, CL	A-7	0-1	98-100	90-100	80-99	70-98	41-70	13-40
	40-62	Silt loam, loam, fine sandy loam.	MH, ML	A-7, A-5	0-2	90-100	85-100	80-99	51-95	41-70	9-36
PaC2, PaD2----- Pacolet	0-4	Sandy loam-----	SC-SM, SC	A-4, A-6	0-1	95-100	90-100	65-87	36-50	20-40	4-17
	4-27	Sandy clay, clay loam, clay.	ML, MH, CL	A-6, A-7	0-1	80-100	80-100	60-100	51-75	38-65	11-33
	27-37	Clay loam, sandy clay loam, sandy loam.	CL, CL-ML, SC-SM, SC	A-2, A-4, A-6	0-2	80-100	70-100	60-80	30-60	20-35	5-15
	37-62	Sandy loam, fine sandy loam, loam.	SM, SC-SM	A-4, A-2-4	0-2	80-100	70-100	60-90	25-50	<28	NP-6
PuC*: Pacolet-----	0-9	Sandy loam-----	SM, SC-SM	A-2, A-1-b, A-4	0-2	85-100	80-100	42-90	16-42	<28	NP-7
	9-31	Sandy clay, clay loam, clay.	ML, MH, CL	A-6, A-7	0-1	80-100	80-100	60-100	51-75	38-65	11-33
	31-36	Clay loam, sandy clay loam, sandy loam.	CL, CL-ML, SC-SM, SC	A-2, A-4, A-6	0-2	80-100	70-100	60-80	30-60	20-35	5-15
	36-70	Sandy loam, fine sandy loam, loam.	SM, SC-SM	A-4, A-2-4	0-2	80-100	70-100	60-90	25-50	<28	NP-6
Urban land.											
RaA*: Rains-----	0-12	Loam, sandy loam	CL-ML, CL	A-6, A-4	0	100	95-100	80-95	55-75	20-35	5-15
	12-20	Fine sandy loam, sandy clay loam, sandy loam, clay loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	55-98	30-70	18-40	4-20
	20-62	Sandy clay loam, clay loam, sandy clay, clay.	SC, SC-SM, CL, CL-ML	A-4, A-6, A-7	0	100	98-100	60-98	36-72	18-45	4-28
	62-80	Sandy loam, sandy clay loam, sandy clay, fine sandy loam.	SM, SC, ML, CL	A-2, A-4, A-6	0	100	95-100	60-95	30-60	15-40	3-18
Toisnot-----	0-10	Sandy loam, loamy fine sand.	SM, SC-SM, SC	A-2, A-4	0	100	100	50-75	15-40	15-25	NP-10
	10-46	Sandy loam, fine sandy loam, silt loam.	SM, SC-SM, SC, ML	A-2, A-4	0	100	100	60-90	30-65	15-25	NP-10
	46-80	Stratified sand to loam, sandy clay.	CL, SC, CL-ML, SC-SM	A-4, A-6	0	100	100	80-95	36-65	20-40	4-20

See footnote at end of table.

Table 14.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
ReD*:											
Rion-----	0-16	Sandy loam-----	SM	A-2, A-4	0-2	90-100	85-100	60-80	20-45	<35	NP-7
	16-34	Sandy loam, sandy clay loam, clay loam.	SC, SC-SM, CL-ML, CL	A-2, A-4, A-6	0-2	90-100	85-100	60-85	30-60	20-35	5-15
	34-65	Sandy loam, sandy clay loam, loamy sand.	SC, SM, SC-SM	A-2, A-4, A-6	0-2	90-100	80-100	60-85	15-50	<36	NP-12
Wateree-----	0-7	Sandy loam-----	SM	A-2, A-4	0-5	85-100	75-98	50-80	25-40	<30	NP-7
	7-28	Coarse sandy loam, sandy loam.	SM	A-2	0-5	80-100	75-95	45-80	25-35	<30	NP-7
	28-35	Sand, loamy sand, sandy loam.	SP-SM, SM	A-1, A-2, A-3	0-5	70-100	65-98	40-80	5-35	<25	NP-3
	35-72	Weathered bedrock	---	---	---	---	---	---	---	---	---
Wedowee-----	0-5	Sandy loam-----	SM, SC-SM	A-4, A-2-4	0	95-100	80-100	50-99	23-50	<30	NP-6
	5-10	Loam, sandy clay loam.	SM, SC, CL, ML	A-4, A-6	0	90-100	90-100	80-97	40-75	<32	NP-15
	10-35	Sandy clay, clay loam, clay.	SC, ML, CL, MH	A-6, A-7	0	95-100	95-100	65-97	45-75	28-58	5-30
	35-62	Sandy clay loam, clay loam, sandy loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	80-100	70-100	60-80	30-60	20-54	5-25
RmA*:											
Riverview-----	0-8	Loam-----	CL, CL-ML, ML	A-4, A-6	0	100	100	90-100	60-80	15-30	3-14
	8-62	Sandy clay loam, silty clay loam, loam, silt loam.	CL, ML, CL-ML	A-4, A-6	0	100	100	90-100	60-95	20-40	3-20
Buncombe-----	0-7	Loamy fine sand	SM, SP-SM	A-2, A-3	0	98-100	98-100	90-97	7-32	10-20	NP
	7-62	Loamy sand, loamy fine sand, sand, fine sand.	SM, SP-SM	A-2, A-3	0	98-100	98-100	98-100	7-32	10-20	NP
RoA*:											
Roanoke-----	0-5	Silt loam-----	SC-SM, CL-ML, CL, SC	A-4, A-6	0	95-100	85-100	60-100	35-90	20-35	5-16
	5-16	Clay loam, silty clay loam.	CL	A-6, A-7	0	95-100	85-100	80-100	80-95	35-45	14-20
	16-51	Clay, silty clay, clay loam.	CH, CL	A-7	0	90-100	85-100	85-100	65-95	45-70	22-40
	51-62	Stratified sand to clay.	CL-ML, GM-GC, CH, SM	A-1, A-2, A-4	0-5	40-100	35-100	25-95	15-90	10-60	NP-40
Wahee-----	0-11	Silt loam, fine sandy loam.	ML, CL-ML, CL	A-4	0	100	100	90-98	51-75	20-35	2-10
	11-62	Clay, clay loam, silty clay.	CL, CH	A-6, A-7	0	100	100	85-100	51-92	38-81	16-54
RwC*:											
Rock outcrop----	0-60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 14.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
RwC*: Wake-----	0-11	Gravelly loamy coarse sand.	SP-SM, SM, GM, GP-GM	A-2, A-3, A-1	0-10	45-85	40-80	30-70	5-15	10-20	NP
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
StA----- State	0-10	Loam-----	SM, SC, ML, CL	A-4, A-6	0	95-100	95-100	65-95	45-85	0-28	NP-15
	10-48	Loam, clay loam, sandy clay loam.	CL, SC	A-4, A-6	0	95-100	95-100	75-100	35-80	24-40	8-22
	48-62	Stratified sand to fine sandy loam.	SM, SC-SM, SP-SM	A-1, A-2, A-3, A-4	0	85-100	60-100	40-90	5-50	0-25	NP-7
TaD, TaE----- Tatum	0-8	Loam-----	ML, CL, CL-ML	A-4, A-6	0-5	85-100	80-100	65-100	60-90	20-34	5-15
	8-50	Silty clay loam, silty clay, clay, clay loam, loam.	MH, CH	A-7	0-5	75-100	75-95	60-95	55-95	50-80	20-45
	50-62	Weathered bedrock	---	---	---	---	---	---	---	---	---
VaB, VaC----- Vance	0-6	Sandy loam-----	SM, SC-SM	A-2, A-4	0-5	90-100	80-100	55-80	15-40	15-27	NP-7
	6-36	Clay loam, sandy clay, clay.	CH	A-7	0-5	95-100	90-100	75-95	65-80	51-80	25-48
	36-62	Variable-----	---	---	---	---	---	---	---	---	---
VgB----- Varina	0-9	Gravelly sandy loam.	SW-SM, SC-SM, SM, SP-SM	A-1, A-2	0-5	70-90	55-75	30-55	10-35	10-25	NP-7
	9-16	Sandy clay loam, clay loam, gravelly clay loam, clay.	SC, MH, ML, SM	A-6, A-7	0-5	85-100	70-100	60-95	40-70	35-60	10-25
	16-80	Sandy clay, clay loam, clay.	CL, SC, CH	A-4, A-6, A-7	0-5	85-100	75-100	70-95	36-70	28-53	8-26
VnB, VnC----- Varina	0-14	Loamy sand, sandy loam.	SM, SP-SM	A-2	0-5	95-100	92-100	70-90	10-35	10-20	NP-3
	14-42	Sandy clay, clay loam, clay, sandy clay loam.	SC, MH, ML, SM	A-6, A-7	0	95-100	92-100	80-95	36-65	36-60	11-25
	42-80	Sandy clay, clay loam, clay.	SC, CL, CH	A-4, A-6, A-7	0	95-100	92-100	75-95	36-68	35-60	8-26
WaB*: Wake-----	0-11	Gravelly loamy coarse sand.	SP-SM, SM, GM, GP-GM	A-2, A-3, A-1	0-10	45-85	40-80	30-70	5-15	10-20	NP
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 14.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
WaB*:											
Saw-----	0-14	Sandy loam-----	SM, SC-SM	A-2-4, A-4	0-5	85-100	80-100	65-90	20-40	20-35	NP-7
	14-25	Clay, sandy clay, clay loam.	ML, MH	A-6, A-7	0-5	85-100	80-100	70-95	51-75	38-65	11-30
	25-34	Sandy clay loam, sandy loam, gravelly sandy loam, clay loam.	SM, SC-SM, GM	A-1-b, A-2-4, A-4	0-15	60-100	55-100	40-90	13-50	20-40	NP-10
	34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Wedowee-----	0-5	Sandy loam-----	SM, SC-SM	A-4, A-2-4	0	95-100	80-100	50-99	23-50	<30	NP-6
	5-10	Loam, sandy clay loam.	SM, SC, CL, ML	A-4, A-6	0	90-100	90-100	80-97	40-75	<32	NP-15
	10-35	Sandy clay, clay loam, clay.	SC, ML, CL, MH	A-6, A-7	0	95-100	95-100	65-97	45-75	28-58	5-30
	35-62	Sandy clay loam, clay loam, sandy loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	80-100	70-100	60-80	30-60	20-54	5-25
WbD*:											
Wake-----	0-11	Gravelly loamy coarse sand.	SP-SM, SM, GM, GP-GM	A-2, A-3, A-1	0-10	45-85	40-80	30-70	5-15	10-20	NP
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Wateree-----	0-7	Sandy loam-----	SM	A-2, A-4	0-5	85-100	75-98	50-80	25-40	<30	NP-7
	7-28	Coarse sandy loam, sandy loam.	SM	A-2	0-5	80-100	75-95	45-80	25-35	<30	NP-7
	28-35	Sand, loamy sand, sandy loam.	SP-SM, SM	A-1, A-2, A-3	0-5	70-100	65-98	40-80	5-35	<25	NP-3
	35-72	Weathered bedrock	---	---	---	---	---	---	---	---	---
Wedowee-----	0-5	Sandy loam-----	SM, SC-SM	A-4, A-2-4	0	95-100	80-100	50-99	23-50	<30	NP-6
	5-10	Loam, sandy clay loam.	SM, SC, CL, ML	A-4, A-6	0	90-100	90-100	80-97	40-75	<32	NP-15
	10-35	Sandy clay, clay loam, clay.	SC, ML, CL, MH	A-6, A-7	0	95-100	95-100	65-97	45-75	28-58	5-30
	35-62	Sandy clay loam, clay loam, sandy loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	80-100	70-100	60-80	30-60	20-54	5-25
WcE*:											
Wake-----	0-11	Gravelly loamy coarse sand.	SP-SM, SM, GM, GP-GM	A-2, A-3, A-1	0-10	45-85	40-80	30-70	5-15	10-20	NP
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Wateree-----	0-7	Sandy loam-----	SM	A-2, A-4	0-5	85-100	75-98	50-80	25-40	<30	NP-7
	7-28	Coarse sandy loam, sandy loam.	SM	A-2	0-5	80-100	75-95	45-80	25-35	<30	NP-7
	28-35	Sand, loamy sand, sandy loam.	SP-SM, SM	A-1, A-2, A-3	0-5	70-100	65-98	40-80	5-35	<25	NP-3
	35-72	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 14.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
WdE*:											
Wateree-----	0-7	Sandy loam-----	SM	A-2, A-4	0-5	85-100	75-98	50-80	25-40	<30	NP-7
	7-28	Coarse sandy loam, sandy loam.	SM	A-2	0-5	80-100	75-95	45-80	25-35	<30	NP-7
	28-35	Sand, loamy sand, sandy loam.	SP-SM, SM	A-1, A-2, A-3	0-5	70-100	65-98	40-80	5-35	<25	NP-3
	35-72	Weathered bedrock	---	---	---	---	---	---	---	---	---
Rion-----	0-16	Sandy loam-----	SM	A-2, A-4	0-2	90-100	85-100	60-80	20-45	<35	NP-7
	16-34	Sandy loam, sandy clay loam, clay loam.	SC, SC-SM, CL-ML, CL	A-2, A-4, A-6	0-2	90-100	85-100	60-85	30-60	20-35	5-15
	34-65	Sandy loam, sandy clay loam, loamy sand.	SC, SM, SC-SM	A-2, A-4, A-6	0-2	90-100	80-100	60-85	15-50	<36	NP-12
Wedowee-----	0-5	Sandy loam-----	SM, SC-SM	A-4, A-2-4	0	95-100	80-100	50-99	23-50	<30	NP-6
	5-10	Loam, sandy clay loam.	SM, SC, CL, ML	A-4, A-6	0	90-100	90-100	80-97	40-75	<32	NP-15
	10-35	Sandy clay, clay loam, clay.	SC, ML, CL, MH	A-6, A-7	0	95-100	95-100	65-97	45-75	28-58	5-30
	35-62	Sandy clay loam, clay loam, sandy loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	80-100	70-100	60-80	30-60	20-54	5-25
WeB, WeC, WeD----	0-5	Sandy loam-----	SM, SC-SM	A-4, A-2-4	0	95-100	80-100	50-99	23-50	<30	NP-6
Wedowee	5-10	Loam, sandy clay loam.	SM, SC, CL, ML	A-4, A-6	0	90-100	90-100	80-97	40-75	<32	NP-15
	10-35	Sandy clay, clay loam, clay.	SC, ML, CL, MH	A-6, A-7	0	95-100	95-100	65-97	45-75	28-58	5-30
	35-62	Sandy clay loam, clay loam, sandy loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	80-100	70-100	60-80	30-60	20-54	5-25
WuC*:											
Wedowee-----	0-5	Sandy loam-----	SM, SC-SM	A-4, A-2-4	0	95-100	80-100	50-99	23-50	<30	NP-6
	5-10	Loam, sandy clay loam.	SM, SC, CL, ML	A-4, A-6	0	90-100	90-100	80-97	40-75	<32	NP-15
	10-35	Sandy clay, clay loam, clay.	SC, ML, CL, MH	A-6, A-7	0	95-100	95-100	65-97	45-75	28-58	5-30
	35-62	Sandy clay loam, clay loam, sandy loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	80-100	70-100	60-80	30-60	20-54	5-25
Urban land.											
Udorthents.											

See footnote at end of table.

Table 14.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
WwB*, WwD*, WwE*: Winnsboro-----	0-6	Loam-----	ML, CL-ML, CL	A-4, A-6	0-5	95-100	90-100	75-95	51-80	20-40	3-20
	6-40	Clay, clay loam	CH	A-7	0-3	90-100	85-100	75-95	65-95	51-92	25-55
	40-48	Loam, sandy clay loam, sandy loam.	ML, SM	A-2, A-4, A-6, A-7	0-3	90-100	45-100	30-95	22-75	25-48	3-15
	48-62	Weathered bedrock	---	---	---	---	---	---	---	---	---
Wilkes-----	0-4	Sandy loam-----	ML, SM	A-2, A-4	0-10	90-100	80-100	60-92	25-55	15-35	NP-7
	4-13	Clay loam, clay, sandy clay loam.	CL, CH	A-6, A-7	0-10	80-100	80-100	75-96	50-85	30-60	11-35
	13-42	Weathered bedrock	---	---	---	---	---	---	---	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 15.--Physical and Chemical Properties of the Soils

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
AaA----- Altavista	0-16	10-24	1.30-1.50	2.0-6.0	0.12-0.20	3.6-6.5	Low-----	0.24	5	.5-3
	16-46	18-35	1.30-1.50	0.6-2.0	0.12-0.20	3.6-6.0	Low-----	0.24		
	46-62	---	---	---	---	---	-----	---		
ApB----- Appling	0-5	5-20	1.40-1.65	2.0-6.0	0.10-0.15	4.5-6.5	Low-----	0.24	4	.5-2
	5-44	35-60	1.25-1.45	0.6-2.0	0.15-0.17	4.5-5.5	Low-----	0.28		
	44-62	20-45	1.25-1.45	0.6-2.0	0.12-0.16	4.5-5.5	Low-----	0.28		
CaB, CaC----- Cecil	0-8	5-20	1.30-1.50	2.0-6.0	0.12-0.14	4.5-6.5	Low-----	0.28	4	.5-1
	8-50	35-70	1.30-1.50	0.6-2.0	0.13-0.15	4.5-5.5	Low-----	0.28		
	50-73	---	---	---	---	---	-----	---		
CeB2----- Cecil	0-3	20-35	1.30-1.50	0.6-2.0	0.13-0.15	4.5-6.5	Low-----	0.28	3	.5-1
	3-45	35-70	1.30-1.50	0.6-2.0	0.13-0.15	4.5-5.5	Low-----	0.28		
	45-60	---	---	---	---	---	-----	---		
ChA*: Chewacla-----	0-10	10-35	1.30-1.60	0.6-2.0	0.15-0.24	4.5-6.5	Low-----	0.28	5	1-4
	10-16	18-35	1.30-1.50	0.6-2.0	0.15-0.24	4.5-6.5	Low-----	0.32		
	16-28	18-35	1.30-1.60	0.6-2.0	0.12-0.20	4.5-6.5	Low-----	0.28		
	28-33	18-35	1.30-1.50	0.6-2.0	0.15-0.24	4.5-7.8	Low-----	0.32		
	33-62	---	---	---	---	---	-----	---		
Wehadkee-----	0-14	6-40	1.35-1.50	0.6-2.0	0.15-0.24	4.5-6.5	Low-----	0.32	5	2-5
	14-30	18-35	1.30-1.50	0.6-2.0	0.16-0.20	4.5-6.5	Low-----	0.32		
	30-62	---	---	---	---	---	-----	---		
DuA----- Duplin	0-18	4-18	1.45-1.65	2.0-6.0	0.10-0.15	5.1-7.3	Low-----	0.24	5	.5-2
	18-80	35-60	1.25-1.40	0.2-0.6	0.13-0.18	4.5-5.5	Moderate----	0.28		
GeB, GeC----- Georgeville	0-8	5-27	1.20-1.40	0.6-2.0	0.15-0.20	4.5-7.3	Low-----	0.43	4	.5-2
	8-15	27-35	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low-----	0.32		
	15-45	35-65	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low-----	0.28		
	45-62	15-40	1.20-1.40	0.6-2.0	0.05-0.10	4.5-5.5	Low-----	0.32		
GgC----- Georgeville	0-7	5-27	1.20-1.40	0.6-2.0	0.15-0.20	4.5-7.3	Low-----	0.24	4	.5-2
	7-26	35-65	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low-----	0.28		
	26-62	15-40	1.20-1.40	0.6-2.0	0.05-0.10	4.5-5.5	Low-----	0.32		
GhB----- Georgeville	0-12	5-27	1.20-1.40	0.6-2.0	0.15-0.20	4.5-7.3	Low-----	0.24	4	.5-2
	12-48	35-65	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low-----	0.28		
	48-62	15-40	1.20-1.40	0.6-2.0	0.05-0.10	4.5-5.5	Low-----	0.32		
GkB2----- Georgeville	0-5	27-35	1.20-1.40	0.6-2.0	0.13-0.18	4.5-7.3	Low-----	0.49	4	<.5
	5-47	35-65	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low-----	0.28		
	47-62	15-40	1.20-1.40	0.6-2.0	0.05-0.10	4.5-5.5	Low-----	0.32		
GmD*, GmE*: Georgeville-----	0-12	5-27	1.20-1.40	0.6-2.0	0.15-0.20	4.5-7.3	Low-----	0.24	4	.5-2
	12-48	35-65	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low-----	0.28		
	48-62	15-40	1.20-1.40	0.6-2.0	0.05-0.10	4.5-5.5	Low-----	0.32		

See footnote at end of table.

Table 15.—Physical and Chemical Properties of the Soils—Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction pH	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in					Pct
GmD*, GmE*:										
Montonia-----	0-11	5-20	1.40-1.60	0.6-2.0	0.12-0.18	4.5-6.0	Low-----	0.15	3	.5-3
	11-35	20-35	1.30-1.50	0.6-2.0	0.14-0.19	4.5-6.0	Low-----	0.20		
	35-42	---	---	---	---	---	-----	---		
	42	---	---	---	---	---	-----	---		
HeB-----	0-4	5-20	1.58-1.62	2.0-6.0	0.10-0.12	3.6-6.5	Low-----	0.24	4	.5-2
Helena	4-39	35-60	1.44-1.55	0.06-0.2	0.13-0.15	3.6-5.5	High-----	0.28		
	39-62	---	---	---	---	---	-----	---		
HrB, HrC-----	0-7	5-27	1.20-1.40	0.6-2.0	0.14-0.20	4.5-6.5	Low-----	0.43	5	.5-1
Herndon	7-40	35-60	1.30-1.60	0.6-2.0	0.13-0.18	3.6-5.5	Low-----	0.28		
	40-62	10-27	1.20-1.40	0.6-2.0	0.05-0.08	3.6-5.5	Low-----	0.32		
PaC2, PaD2-----	0-4	20-35	1.30-1.50	0.6-2.0	0.10-0.14	4.5-6.5	Low-----	0.24	2	.5-1
Pacolet	4-27	35-65	1.30-1.50	0.6-2.0	0.12-0.15	4.5-6.0	Low-----	0.28		
	27-37	15-30	1.20-1.50	0.6-2.0	0.08-0.15	4.5-6.0	Low-----	0.28		
	37-62	10-25	1.20-1.50	0.6-2.0	0.08-0.15	4.5-6.0	Low-----	0.28		
PuC*:										
Pacolet-----	0-9	8-20	1.00-1.50	2.0-6.0	0.08-0.12	4.5-6.5	Low-----	0.20	3	.5-2
	9-31	35-65	1.30-1.50	0.6-2.0	0.12-0.15	4.5-6.0	Low-----	0.28		
	31-36	15-30	1.20-1.50	0.6-2.0	0.08-0.15	4.5-6.0	Low-----	0.28		
	36-70	10-25	1.20-1.50	0.6-2.0	0.08-0.15	4.5-6.0	Low-----	0.28		
Urban land.										
RaA*:										
Rains-----	0-12	7-27	1.45-1.60	0.6-2.0	0.16-0.20	3.6-5.5	Low-----	0.28	5	1-6
	12-20	18-35	1.30-1.60	0.6-2.0	0.11-0.15	3.6-5.5	Low-----	0.24		
	20-62	18-40	1.30-1.50	0.6-2.0	0.10-0.15	3.6-5.5	Low-----	0.28		
	62-80	15-45	1.30-1.60	0.6-2.0	0.10-0.15	3.6-5.5	Low-----	0.28		
Toisnot-----	0-10	5-15	1.50-1.70	2.0-6.0	0.06-0.14	4.5-5.5	Low-----	0.10	3	.5-2
	10-46	5-15	1.50-1.70	0.2-0.6	0.10-0.15	4.5-5.5	Low-----	0.32		
	46-80	15-30	1.25-1.35	0.06-0.2	0.10-0.18	4.5-5.5	Low-----	0.37		
ReD*:										
Rion-----	0-16	5-20	1.30-1.50	2.0-6.0	0.08-0.12	4.5-6.5	Low-----	0.24	3	.5-2
	16-34	18-35	1.40-1.50	0.6-2.0	0.08-0.15	4.5-6.5	Low-----	0.20		
	34-65	2-20	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.5	Low-----	0.20		
Wateree-----	0-7	5-18	1.40-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.20	3	<1
	7-28	5-18	1.30-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.20		
	28-35	2-15	1.40-1.70	2.0-6.0	0.04-0.12	3.6-6.0	Low-----	0.17		
	35-72	---	---	---	---	---	-----	---		
Wedowee-----	0-5	5-20	1.25-1.60	2.0-6.0	0.10-0.18	3.6-5.5	Low-----	0.24	4	.5-3
	5-10	14-30	1.30-1.55	0.6-2.0	0.12-0.18	3.6-5.5	Low-----	0.28		
	10-35	35-45	1.30-1.50	0.6-2.0	0.12-0.18	3.6-5.5	Low-----	0.28		
	35-62	15-30	1.20-1.50	0.6-2.0	0.08-0.15	3.6-5.5	Low-----	0.28		
RmA*:										
Riverview-----	0-8	10-27	1.30-1.60	0.6-2.0	0.16-0.24	4.5-6.5	Low-----	0.32	5	.5-2
	8-62	18-35	1.20-1.40	0.6-2.0	0.15-0.22	4.5-6.0	Low-----	0.24		
Buncombe-----	0-7	3-12	1.60-1.75	>6.0	0.06-0.10	4.5-6.5	Low-----	0.10	5	.5-1
	7-62	3-12	1.60-1.75	>6.0	0.03-0.07	4.5-6.5	Low-----	0.10		

See footnote at end of table.

Table 15.—Physical and Chemical Properties of the Soils—Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction pH	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in					Pct
RoA*:										
Roanoke-----	0-5	10-27	1.20-1.50	0.6-2.0	0.14-0.20	3.5-5.5	Low-----	0.37	5	.5-2
	5-16	20-35	1.20-1.50	0.06-0.2	0.16-0.19	3.5-5.5	Moderate-----	0.24		
	16-51	35-60	1.35-1.65	0.06-0.2	0.10-0.19	3.5-5.5	Moderate-----	0.24		
	51-62	5-50	1.20-1.50	0.06-0.20	0.04-0.14	3.5-5.5	Moderate-----	0.24		
Wahee-----	0-11	10-27	1.20-1.50	0.2-2.0	0.15-0.20	4.5-6.0	Low-----	0.28	5	.5-5
	11-62	35-70	1.40-1.60	0.06-0.2	0.12-0.20	3.6-5.5	Moderate-----	0.28		
RwC*:										
Rock outcrop----	0-60	---	---	0.06-6.0	---	---	-----	---	---	---
Wake-----	0-11	3-12	1.65-1.80	6.0-20	0.03-0.08	4.5-6.0	Low-----	0.15	1	.5-1
	11	---	---	0.00-0.01	---	---	-----	---		
StA-----	0-10	10-18	1.20-1.35	0.6-2.0	0.12-0.17	3.6-5.5	Low-----	0.28	5	.5-2
State	10-48	18-34	1.35-1.50	0.6-2.0	0.14-0.19	3.6-5.5	Low-----	0.28		
	48-62	2-15	1.35-1.50	2.0-20	0.02-0.10	3.6-6.5	Low-----	0.17		
TaD, TaE-----	0-8	12-27	1.10-1.40	0.6-2.0	0.16-0.20	4.5-5.5	Low-----	0.37	4	.5-2
Tatum	8-50	45-60	1.40-1.60	0.6-2.0	0.10-0.19	4.5-5.5	Moderate-----	0.28		
	50-62	---	---	0.00-0.06	---	---	-----	---		
Ud-----	0-60	10-50	1.30-1.65	0.06-2.0	0.10-0.17	4.5-7.8	Moderate-----	0.28	5	0-1
Udorthents										
VaB, VaC-----	0-6	8-20	1.45-1.70	2.0-6.0	0.10-0.14	4.5-6.0	Low-----	0.24	3	.5-2
Vance	6-36	35-60	1.25-1.40	0.06-0.2	0.12-0.15	4.5-5.5	Moderate-----	0.28		
	36-62	---	---	---	---	---	-----	---		
VgB-----	0-9	4-12	1.35-1.45	2.0-6.0	0.05-0.11	4.5-6.5	Low-----	0.17	4	.5-2
Varina	9-16	35-50	1.40-1.55	0.6-2.0	0.12-0.18	4.5-5.5	Low-----	0.28		
	16-80	35-50	1.45-1.55	0.06-0.2	0.10-0.17	4.5-5.5	Low-----	0.28		
VnB, VnC-----	0-14	3-10	1.50-1.70	6.0-20	0.05-0.09	4.5-6.5	Low-----	0.15	4	.5-2
Varina	14-42	35-60	1.30-1.50	0.6-2.0	0.12-0.18	4.5-5.5	Low-----	0.28		
	42-80	30-55	1.30-1.50	0.06-0.2	0.06-0.09	4.5-5.5	Low-----	0.28		
WaB*:										
Wake-----	0-11	3-12	1.65-1.80	6.0-20	0.03-0.08	4.5-6.0	Low-----	0.15	1	.5-1
	11	---	---	0.00-0.01	---	---	-----	---		
Saw-----	0-14	5-20	1.30-1.50	2.0-6.0	0.08-0.12	4.5-7.3	Low-----	0.20	2	.5-2
	14-25	35-60	1.30-1.50	0.6-2.0	0.12-0.15	4.5-6.5	Low-----	0.28		
	25-34	5-30	1.30-1.50	0.6-6.0	0.07-0.12	4.5-6.0	Low-----	0.20		
	34	---	---	---	---	---	-----	---		
Wedowee-----	0-5	5-20	1.25-1.60	2.0-6.0	0.10-0.18	3.6-5.5	Low-----	0.24	4	.5-3
	5-10	14-30	1.30-1.55	0.6-2.0	0.12-0.18	3.6-5.5	Low-----	0.28		
	10-35	35-45	1.30-1.50	0.6-2.0	0.12-0.18	3.6-5.5	Low-----	0.28		
	35-62	15-30	1.20-1.50	0.6-2.0	0.08-0.15	3.6-5.5	Low-----	0.28		
WbD*:										
Wake-----	0-11	3-12	1.65-1.80	6.0-20	0.03-0.08	4.5-6.0	Low-----	0.15	1	.5-1
	11	---	---	0.00-0.01	---	---	-----	---		
Wateree-----	0-7	5-18	1.40-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.20	3	<1
	7-28	5-18	1.30-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.20		
	28-35	2-15	1.40-1.70	2.0-6.0	0.04-0.12	3.6-6.0	Low-----	0.17		
	35-72	---	---	---	---	---	-----	---		

See footnote at end of table.

Table 15.—Physical and Chemical Properties of the Soils—Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction pH	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in					Pct
WbD*:										
Wedowee-----	0-5	5-20	1.25-1.60	2.0-6.0	0.10-0.18	3.6-5.5	Low-----	0.24	4	.5-3
	5-10	14-30	1.30-1.55	0.6-2.0	0.12-0.18	3.6-5.5	Low-----	0.28		
	10-35	35-45	1.30-1.50	0.6-2.0	0.12-0.18	3.6-5.5	Low-----	0.28		
	35-62	15-30	1.20-1.50	0.6-2.0	0.08-0.15	3.6-5.5	Low-----	0.28		
WcE*:										
Wake-----	0-11	3-12	1.65-1.80	6.0-20	0.03-0.08	4.5-6.0	Low-----	0.15	1	.5-1
	11	---	---	0.00-0.01	---	---	-----	---		
Waterree-----	0-7	5-18	1.40-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.20	3	<1
	7-28	5-18	1.30-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.20		
	28-35	2-15	1.40-1.70	2.0-6.0	0.04-0.12	3.6-6.0	Low-----	0.17		
	35-72	---	---	---	---	---	-----	---		
WdE*:										
Waterree-----	0-7	5-18	1.40-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.20	3	<1
	7-28	5-18	1.30-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.20		
	28-35	2-15	1.40-1.70	2.0-6.0	0.04-0.12	3.6-6.0	Low-----	0.17		
	35-72	---	---	---	---	---	-----	---		
Rion-----	0-16	5-20	1.30-1.50	2.0-6.0	0.08-0.12	4.5-6.5	Low-----	0.24	3	.5-2
	16-34	18-35	1.40-1.50	0.6-2.0	0.08-0.15	4.5-6.5	Low-----	0.20		
	34-65	2-20	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.5	Low-----	0.20		
Wedowee-----	0-5	5-20	1.25-1.60	2.0-6.0	0.10-0.18	3.6-5.5	Low-----	0.24	4	.5-3
	5-10	14-30	1.30-1.55	0.6-2.0	0.12-0.18	3.6-5.5	Low-----	0.28		
	10-35	35-45	1.30-1.50	0.6-2.0	0.12-0.18	3.6-5.5	Low-----	0.28		
	35-62	15-30	1.20-1.50	0.6-2.0	0.08-0.15	3.6-5.5	Low-----	0.28		
WeB, WeC, WeD----	0-5	5-20	1.25-1.60	2.0-6.0	0.10-0.18	3.6-5.5	Low-----	0.24	4	.5-3
Wedowee	5-10	14-30	1.30-1.55	0.6-2.0	0.12-0.18	3.6-5.5	Low-----	0.28		
	10-35	35-45	1.30-1.50	0.6-2.0	0.12-0.18	3.6-5.5	Low-----	0.28		
	35-62	15-30	1.20-1.50	0.6-2.0	0.08-0.15	3.6-5.5	Low-----	0.28		
WuC*:										
Wedowee-----	0-5	5-20	1.25-1.60	2.0-6.0	0.10-0.18	3.6-5.5	Low-----	0.24	4	.5-3
	5-10	14-30	1.30-1.55	0.6-2.0	0.12-0.18	3.6-5.5	Low-----	0.28		
	10-35	35-45	1.30-1.50	0.6-2.0	0.12-0.18	3.6-5.5	Low-----	0.28		
	35-62	15-30	1.20-1.50	0.6-2.0	0.08-0.15	3.6-5.5	Low-----	0.28		
Urban land.										
Udorthents-----	0-60	10-50	1.30-1.65	0.06-2.0	0.10-0.17	4.5-7.8	Moderate----	0.28	5	0-1
WwB*, WwD*, WwE*:										
Winnsboro-----	0-6	10-25	1.20-1.40	0.6-2.0	0.15-0.20	5.1-6.5	Low-----	0.32	4	.5-2
	6-40	35-60	1.20-1.50	0.06-0.2	0.15-0.20	6.1-7.8	High-----	0.20		
	40-48	15-35	1.30-1.60	0.2-0.6	0.15-0.20	6.1-7.8	Moderate----	0.28		
	48-62	---	---	---	---	---	-----	---		
Wilkes-----	0-4	5-20	1.30-1.50	2.0-6.0	0.11-0.15	5.1-6.5	Low-----	0.24	2	.5-2
	4-13	20-45	1.40-1.60	0.2-0.6	0.15-0.20	6.1-7.8	Moderate----	0.32		
	13-42	---	---	---	---	---	-----	---		

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 16.--Soil and Water Features

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					<u>Ft</u>			<u>In</u>			
AaA----- Altavista	C	Rare-----	---	---	1.5-2.5	Apparent	Dec-Apr	>60	---	Moderate	Moderate.
ApB----- Appling	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
CaB, CaC, CeB2 Cecil	B	None-----	---	---	>6.0	---	---	>60	---	High-----	High.
ChA*: Chewacla-----	C	Frequent----	Brief-----	Nov-Jun	0.5-1.5	Apparent	Nov-Apr	>60	---	High-----	Moderate.
Wehadkee-----	D	Frequent----	Brief-----	Nov-Jun	0-1.0	Apparent	Nov-May	>60	---	High-----	Moderate.
DuA----- Duplin	C	None-----	---	---	2.0-3.0	Apparent	Dec-Apr	>60	---	High-----	High.
GeB, GeC, GgC, GhB, GkB2----- Georgeville	B	None-----	---	---	>6.0	---	---	>60	---	High-----	High.
GmD*, GmE*: Georgeville---	B	None-----	---	---	>6.0	---	---	>60	---	High-----	High.
Montonia-----	B	None-----	---	---	>6.0	---	---	20-40 40-60	Soft Hard	Moderate	High.
HeB----- Helena	C	None-----	---	---	1.5-2.5	Perched	Jan-Apr	>60	---	High-----	High.
HrB, HrC----- Herndon	B	None-----	---	---	>6.0	---	---	>60	---	High-----	High.
PaC2, PaD2----- Pacolet	B	None-----	---	---	>6.0	---	---	>60	---	High-----	High.
PuC*: Pacolet-----	B	None-----	---	---	>6.0	---	---	>60	---	High-----	High.
Urban land-----	---	None-----	---	---	>2.0	---	---	>10	---	---	---
RaA*: Rains-----	B/D	None-----	---	---	0-1.0	Apparent	Nov-Apr	>60	---	High-----	High.
Toisnot-----	B/D	None-----	---	---	0-1.0	Apparent	Dec-Apr	>60	---	High-----	High.
ReD*: Rion-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High.
Wateree-----	B	None-----	---	---	>6.0	---	---	20-40 >40	Soft Hard	Low-----	High.
Wedowee-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High.

See footnote at end of table.

Table 16.--Soil and Water Features--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					<u>Ft</u>			<u>In</u>			
RmA*: Riverview-----	B	Frequent-----	Brief-----	Jan-Dec	3.0-5.0	Apparent	Dec-Mar	>60	---	Low-----	Moderate.
Buncombe-----	A	Frequent-----	Brief-----	Jan-Dec	>6.0	---	---	>60	---	Low-----	Moderate.
RoA*: Roanoke-----	D	Occasional	Brief-----	Nov-Jun	0-1.0	Apparent	Nov-May	>60	---	High-----	High.
Wahee-----	D	Occasional	Brief-----	Nov-Jun	0.5-1.5	Apparent	Dec-Mar	>60	---	High-----	High.
RwC*: Rock outcrop--	D	None-----	---	---	>6.0	---	---	0	Hard	---	---
Wake-----	D	None-----	---	---	>6.0	---	---	8-20	Hard	Moderate	Moderate.
StA----- State	B	Rare-----	---	---	4.0-6.0	Apparent	Dec-Jun	>60	---	Moderate	High.
TaD, TaE----- Tatum	B	None-----	---	---	>6.0	---	---	40-60 >60	Soft Hard	High-----	High.
Ud----- Udorthents	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High.
VaB, VaC----- Vance	C	None-----	---	---	>6.0	---	---	>60	---	High-----	High.
VgB, VnB, VnC-- Varina	C	None-----	---	---	4.0-5.0	Perched	Dec-Apr	>60	---	Moderate	High.
WaB*: Wake-----	D	None-----	---	---	>6.0	---	---	8-20	Hard	Moderate	Moderate.
Saw-----	B	None-----	---	---	>6.0	---	---	20-40	Hard	Moderate	Moderate.
Wedowee-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High.
WbD*: Wake-----	D	None-----	---	---	>6.0	---	---	8-20	Hard	Moderate	Moderate.
Wateree-----	B	None-----	---	---	>6.0	---	---	20-40 >40	Soft Hard	Low-----	High.
Wedowee-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High.
WcE*: Wake-----	D	None-----	---	---	>6.0	---	---	8-20	Hard	Moderate	Moderate.
Wateree-----	B	None-----	---	---	>6.0	---	---	20-40 >40	Soft Hard	Low-----	High.
WdE*: Wateree-----	B	None-----	---	---	>6.0	---	---	20-40 >40	Soft Hard	Low-----	High.
Rion-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High.
Wedowee-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High.

See footnote at end of table.

Table 16.--Soil and Water Features--Continued

Soil name and map symbol	Hydro- logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard- ness	Uncoated steel	Concrete
					<u>Ft</u>			<u>In</u>			
WeB, WeC, WeD-- Wedowee	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High.
WuC*: Wedowee-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High.
Urban land----	---	None-----	---	---	>2.0	---	---	>10	---	---	---
Udorthents----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High.
WwB*, WwD*, WwE*: Winnsboro-----	C	None-----	---	---	>6.0	---	---	40-60	Soft	High-----	Moderate.
Wilkes-----	C	None-----	---	---	>6.0	---	---	10-20	Soft	Moderate	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 17.—Classification of the Soils

Soil name	Family or higher taxonomic class
Altavista-----	Fine-loamy, mixed, semiactive, thermic Aquic Hapludults
Appling-----	Fine, kaolinitic, thermic Typic Kanhapludults
Buncombe-----	Mixed, thermic Typic Udipsamments
Cecil-----	Fine, kaolinitic, thermic Typic Kanhapludults
Chewacla-----	Fine-loamy, mixed, semiactive, thermic Fluvaquentic Dystrachrepts
Duplin-----	Fine, kaolinitic, thermic Aquic Paleudults
Georgeville-----	Fine, kaolinitic, thermic Typic Hapludults
Helena-----	Fine, mixed, semiactive, thermic Aquic Hapludults
Hendon-----	Fine, kaolinitic, thermic Typic Hapludults
Montonia-----	Fine-loamy, mixed, semiactive, thermic Typic Hapludults
Pacolet-----	Fine, kaolinitic, thermic Typic Kanhapludults
Rains-----	Fine-loamy, siliceous, semiactive, thermic Typic Paleaquults
Rion-----	Fine-loamy, mixed, semiactive, thermic Typic Hapludults
Riverview-----	Fine-loamy, mixed, active, thermic Fluventic Dystrachrepts
Roanoke-----	Fine, mixed, semiactive, thermic Typic Endoaquults
Saw-----	Fine, kaolinitic, thermic Typic Kanhapludults
State-----	Fine-loamy, mixed, semiactive, thermic Typic Hapludults
Tatum-----	Fine, mixed, semiactive, thermic Typic Hapludults
Toisnot-----	Coarse-loamy, siliceous, semiactive, thermic Typic Fragiaquults
Udorthents-----	Udorthents
Vance-----	Fine, mixed, semiactive, thermic Typic Hapludults
Varina-----	Fine, kaolinitic, thermic Plinthic Paleudults
Wahee-----	Fine, mixed, semiactive, thermic Aeric Endoaquults
Wake-----	Mixed, thermic Lithic Udipsamments
Wateree-----	Coarse-loamy, mixed, semiactive, thermic Typic Dystrachrepts
Wedowee-----	Fine, kaolinitic, thermic Typic Kanhapludults
Wehadkee-----	Fine-loamy, mixed, semiactive, nonacid, thermic Typic Fluvaquents
Wilkes-----	Loamy, mixed, active, thermic, shallow Typic Hapludalfs
Winnsboro-----	Fine, mixed, acid, thermic Typic Hapludalfs