United States
Department of
Agriculture

Soil
Conservation
Service

In cooperation with
North Carolina Department
of Natural Resources and
Community Development,
North Carolina Agricultural
Extension Service,
North Carolina Agricultural
Research Service, and
Nash County
Board of Commissioners

Soil Survey of Nash County, North Carolina

How To Use This Soil Survey

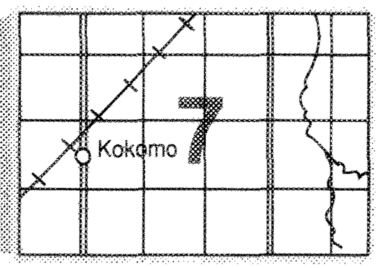
General Soil Map

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.

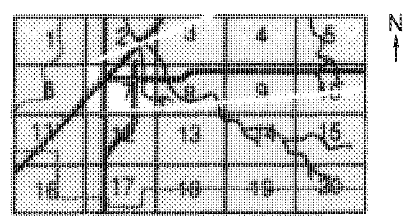
Detailed Soil Maps

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



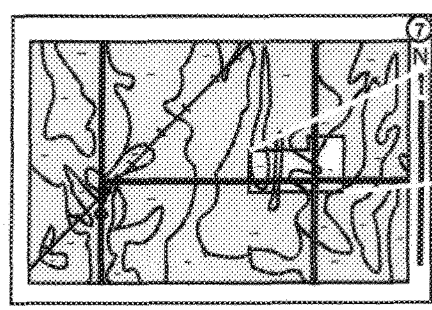
MAP SHEET

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.

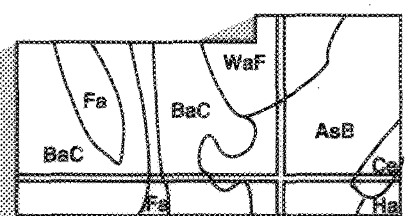


INDEX TO MAP SHEETS

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



MAP SHEET



AREA OF INTEREST

NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

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

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

Major fieldwork for this soil survey was completed in 1983. Soil names and descriptions were approved in 1983. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1983. This soil survey was made cooperatively by the Soil Conservation Service, the North Carolina Department of Natural Resources and Community Development, North Carolina Agricultural Extension Service, North Carolina Agricultural Research Service, and Nash County Board of Commissioners. It is part of the technical assistance furnished to the Nash County Soil and Water Conservation District.

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

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

Cover: Harold Dunbar Cooley Mansion, Nashville, North Carolina, is on Bonneau loamy sand, 0 to 4 percent slopes. (Photo courtesy of Ben Casey Photography.)

Contents

Soil Series

Issued September 1989

Index to map units

Summary of Tables

Foreword

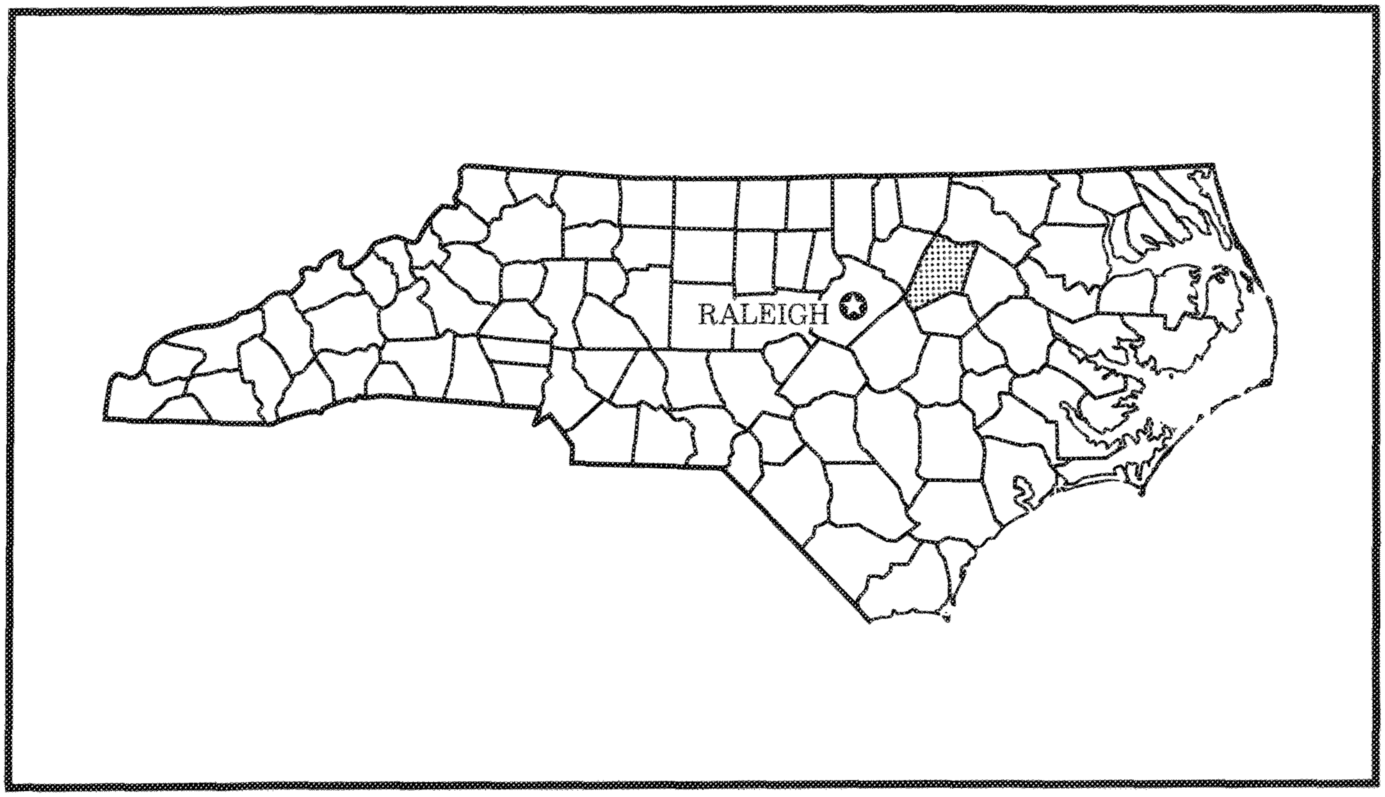
This soil survey contains information that can be used in land-planning programs in Nash County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of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

This soil survey is designed for many different users. Farmers, ranchers, 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 insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

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

These and many other soil properties that affect land use are described in this soil survey. 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 Soil Conservation Service or the Cooperative Extension Service.

Bobbye Jack Jones
State Conservationist
Soil Conservation Service



Location of Nash County in North Carolina.

Soil Survey of Nash County, North Carolina

By John B. Allison, North Carolina Department of Natural Resources and Community Development

Soils surveyed by John B. Allison, Donald C. Eligman, R. Bruce Rider, North Carolina Department of Natural Resources and Community Development; and Joel W. Cawthorn, Soil Conservation Service.
Other contributions by James Dunn, William Yarborough, III, and Frank Winkler, Soil Conservation Service; and Timothy Garahan, North Carolina Extension Service.

United States Department of Agriculture, Soil Conservation Service
in cooperation with
North Carolina Department of Natural Resources and Community Development,
North Carolina Agricultural Extension Service,
North Carolina Agricultural Research Service,
and Nash County Board of Commissioners

General Nature of the County

NASH COUNTY is in the east-central part of North Carolina. It lies on the physiographic boundary between the Coastal Plain and the Piedmont. The county is rural and has a total area of 347,161 acres.

In 1980, the total population of Nash County was about 67,153, which is about 1 percent of the population of the state. Nashville, the county seat, has a population of about 2,678. Rocky Mount is the largest city in the county and has a population of about 24,205 on the Nash County side. Most major highways and railroads pass through the city. The county is also served by the Rocky Mount-Wilson airport.

Farming is the major industry in the county. Tobacco, corn, soybeans, peanuts, cucumbers, small grains, and sweet potatoes are the major crops. There are also many pick-your-own vegetable farms. Pasture or woodland make up the rest of the county. Beef cattle, swine, and poultry are also an important part of Nash County's agricultural base (fig. 1).

This soil survey updates a soil survey for Nash County published in 1926 and provides additional information.

Physiography, Relief, and Drainage

Nash County is in the fall line region of North Carolina. The Coastal Plain stretches from the east and tapers out across the western part of the county. The Piedmont rolls from the west and thins out through the central section of the county. The soils of the two regions intermingle on well drained landscapes in a corridor 10 to 12 miles wide running north and south through the west-central part of the county.

The Piedmont is in the west and northwest section of the county. The landscape is well dissected with narrow ridges and flood plains and long slopes that can be quite steep. The elevation ranges from 250 to 270 feet above sea level on the ridges and from 200 to 220 feet on the flood plains. The highest points are more than 300 feet. This area is underlain by soft, weathered Carolina slate or granite saprolite *(15)*.

The pure Coastal Plain areas are in the northeast and southeast parts of the county. In these areas, the uplands are broad and flat and range in elevation from 130 to 150 feet. Drainageways are broad and sandy and are more than one mile wide in places. The elevation of the drainageways is about 100 feet.

Figure 1.—This cage layer poultry operation is an example of Nash County's diverse agricultural base. A large number of broiler operations as well as farrow-to-finish swine enterprises are also in the county.

Nash County is drained to the east and southeast by many large streams. Fishing and Swift Creeks drain the northern part of the county, and the central part is drained by the Pig Basket, Stony, and Sapony Creeks. The Tar River and the Toisnot, Turkey, and Moccasin Creeks drain the southern part.

Ground water supplies are adequate but can be threatened by prolonged drought. Hundreds of dug ponds supply irrigation water for crops. All rural homes and most towns except Rocky Mount rely on ground water for their needs. Surface water from the Tar River and Sapony Creek Reservoirs supplies Rocky Mount and part of Nashville. Runoff ponds throughout the county supply surface water for fishing and irrigation.

History and Development

T.E. Ricks, president, Nash County Historical Society, prepared this section.

Nash County was established in 1777. It had been a part of Colonial Albemarle, then a part of Chowan County, later a part of Bertie County, and finally a part of Edgecombe County. Assemblymen Boddie and Johnston of Edgecombe County petitioned the North Carolina Assembly for a division cf Edgecombe to establish a new county west of the Falls of the Tar. The request was made because "the largest extent of Edgecombe County renders it grievous and troublesome to many of the inhabitants thereof to attend court and general elections and other public meetings" *(10)*. The county was named in honor of General Francis Nash of North Carolina. General Nash had died just months before in the Revolutionary battle of Germantown in Pennsylvania.

The period of 1830 to 1860 was one of prosperity for the county. The area was a panorama of large plantations. A cotton mill established in 1818 at the Falls of the Tar in Rocky Mount and the completion of the Wilmington to Weldon Railroad in 1840 contributed to the prosperity.

The Civil War halted growth in Nash County for some time and resulted in the emergence of a different life style with the family farm pretty much replacing the plantation. Cotton continued to be an important crop, but it was not as lucrative because of the loss of slave labor. By the early 1880's following the introduction of guano into the area, tobacco was grown commercially. By 1887, Rocky Mount had a tobacco sales warehouse, and two years later, a bank was established. Tobacco has been a strong commodity ever since. Not only was it the leading agricultural product, but it afforded employment and income for others through the Rocky Mount tobacco market and local stemmeries and redrying plants.

In the past 30 years, agriculture in Nash County has diversified to include livestock and poultry, while cotton production has declined substantially. Peanuts is also an important crop in the northeast section of the county.

Climate

Prepared by the National Climatic Data Center, Asheville, North Carolina.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Nashville in the period 1951 to 1978. 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 41 degrees F, and the average daily minimum temperature is 30 degrees. The lowest temperature on record, which occurred at Nashville on January 11, 1962, is 5 degrees. In summer the average temperature is 77 degrees, and the average daily maximum temperature is 88 degrees. The highest recorded temperature, which occurred on September 7, 1954, is 107 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 annual precipitation is 44.5 inches. Of this, 25 inches, or 55 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 20 inches. The heaviest 1-day rainfall during the period of record was 4.8 inches at Nashville on July 30, 1968. Thunderstorms occur on about 40 days each year, and most occur in summer. Every few years, a tropical storm moves inland from the Atlantic Ocean causing extremely heavy rainfall for 1 to 3 days. These storms generally occur late in summer or in fall.

The average seasonal snowfall is 6 inches. The greatest snow depth at any one time during the period of record was 8 inches. On an average of 2 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year. Every few years, a heavy snowfall covers the ground for a few days to a week.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The sun shines 65 percent of the time possible in summer and 55 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 11 miles per hour, in spring.

How This Survey Was Made

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

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

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

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

While a soil survey is in progress, samples of some of the soils in the area are generally collected for laboratory analyses and for engineering tests. Soil scientists interpreted the data from these analyses and tests as well as the field-observed characteristics and the soil properties in terms of expected behavior of the soils under different uses. Interpretations for all of the soils were field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and new interpretations sometimes are developed to meet local needs. Data were 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 were 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 state with a fairly high degree of probability that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

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

Map Unit Composition

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

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

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

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, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units 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. Norfolk-Rains

Nearly level to gently sloping, well drained and poorly drained soils that have a loamy or clayey subsoil; on uplands

These soils are mainly in the central and northeast sections of the county. Typically, the areas are broad, nearly level to gently sloping, and vary in size.

This map unit makes up about 31 percent of the county. About 32 percent of the map unit is Norfolk soils, 23 percent is Rains soils, and 45 percent is soils of minor extent.

Norfolk soils are well drained and are on ridges and side slopes. They have a loamy sand surface layer and a sandy clay loam subsoil.

Rains soils are poorly drained. They are in upland depressions that form heads of drainageways or in broad, flat areas farthest away from the drainageways. These soils have a fine sandy loam surface layer and a sandy clay loam or sandy clay subsoil.

Of minor extent in this map unit are the Nankin, Faceville, Bonneau, Georgeville, Nason, Wedowee, Gritney, Goldsboro, Bibb, and Wehadkee soils. Nankin, Faceville, Bonneau, Georgeville, Nason, and Wedowee soils are on ridges. Gritney soils are on side slopes. Goldsboro soils are in upland depressions, and Bibb and Wehadkee soils are along drainageways.

Norfolk and Rains soils can be used for farming, urban development, and forestry. Norfolk soils can be used as habitat for openland or woodland wildlife, and Rains soils are best used as habitat for woodland and wetland wildlife. Norfolk soils are chiefly used for farming (fig. 2), and Rains soils are used mainly as woodland. The high water table in Rains soils is the main limitation to most uses. Drainage can overcome most water table problems.

2. Norfolk-Georgeville-Rains

Nearly level to gently sloping, well drained and poorly drained soils that have a loamy or clayey subsoil; on uplands

These soils stretch in a corridor from the northern to the southern boundaries of the county through the west central section of the county. Typically, the areas are broad. Slopes range from 0 to 8 percent.

This map unit makes up about 34 percent of the county. About 32 percent of the map unit is Norfolk soils, 31 percent is Georgeville soils, 11 percent is Rains soils, and 26 percent is soils of minor extent.

Norfolk soils are well drained and are on ridges and side slopes. They have a loamy sand surface layer and a sandy clay loam subsoil.

Georgeville soils are well drained and are on ridges and side slopes. They have a loam or gravelly loam surface layer and a silty clay or silty clay loam subsoil.

Rains soils are poorly drained and are in upland depressions that form heads of drainageways. They have a fine sandy loam surface layer and a sandy clay loam or sandy clay subsoil.

Of minor extent in this map unit are the Faceville, Nankin, Bonneau, Gritney, Goldsboro, and Wehadkee soils. The Faceville, Nankin, Bonneau, and Gritney soils are intermingled with the major soils. The Goldsboro soils are in upland depressions, and the Wehadkee soils are along drainageways.

The Norfolk and Georgeville soils are used mainly for row crops and pasture. The Rains soils are used as pasture and woodland. Most Georgeville and Norfolk soils can be used as habitat for woodland and openland wildlife. Rains soils can be used as habitat for woodland and wetland wildlife. Erosion is a hazard on Norfolk and Georgeville soils. Conservation practices, especially conservation tillage, can overcome this problem. A high water table is the main limitation on the Rains soil, but

Figure 2.—Peanuts is a major crop on Norfolk loamy sand, 0 to 2 percent slopes, in the Whitakers area.

tile or ditch drainage systems help to overcome this limitation.

The major soils can be used for most urban development and as habitat for wildlife.

3. Rains-Norfolk-Goldsboro

Nearly level to gently sloping, poorly drained, well drained, and moderately well drained soils that have a loamy or clayey subsoil; on uplands

These soils are mainly in the east and southeast section of the county. Typically, the areas are broad, nearly level to gently sloping, and vary in size.

This map unit makes up about 3 percent of the county. About 48 percent is Rains soils, 17 percent is Norfolk soils, 13 percent is Goldsboro soils, and 22 percent is soils of minor extent.

Rains soils are poorly drained. They are in upland depressions that form heads of drainageways. These soils have a fine sandy loam surface layer and a sandy clay loam or sandy clay subsoil.

Norfolk soils are well drained and are on ridges and side slopes. They have a loamy sand surface layer and a sandy clay loam subsoil.

Goldsboro soils are moderately well drained. They are in upland depressions and low, flat areas between the Norfolk and Rains soils. These soils have a surface layer of fine sandy loam and a subsoil of sandy clay loam.

Of minor extent in this map unit are the Bonneau and Bibb soils. The Bonneau soils are in well drained areas, and the Bibb soils are along drainageways.

Rains soils can be used for farming, habitat for woodland and wetland wildlife, urban development, and forestry. They are chiefly used for forestry. The high water table is the main limitation to the use of these soils.

Norfolk soils are used mainly for row crops. In some scattered areas, they are used as pasture or woodland.

Goldsboro soils can be used for farming, habitat for openland or woodland wildlife, urban development, and forestry. They are chiefly used for farming. The seasonal high water table affects most uses of these soils.

4. Bonneau-Norfolk

Nearly level to gently sloping, well drained soils that have a loamy subsoil; on uplands

These soils are mainly in the central section of the county. Typically, the areas are broad, gently sloping, and vary in size.

This map unit makes up about 2 percent of the county. About 25 percent of the map unit is Bonneau soils, 19 percent is Norfolk soils, and 56 percent is soils of minor extent.

Bonneau soils are well drained and are on gently sloping uplands. They have a thick, loamy sand surface layer and a sandy clay loam subsoil.

Norfolk soils are well drained and are on nearly level to gently sloping uplands. They have a loamy sand surface layer and a sandy clay loam subsoil.

Of minor extent in this map unit are the Blanton, Goldsboro, Rains, and Bibb soils. The Blanton soils are on uplands, and the Goldsboro and Rains soils are in upland depressions. The Bibb soils are in drainageways.

The major soils can be used for farming, habitat for openland or woodland wildlife, urban development, and forestry. They are chiefly used as cropland. The sandy surface layer is susceptible to drought and wind erosion if farmed (fig. 3) and to cave-ins and seepage in shallow excavations.

5. Wehadkee-Altavista-Wickham

Nearly level, poorly drained, moderately well drained, and well drained soils that have a loamy subsoil; on

Figure 3.—Bonneau loamy sand, 0 to 6 percent slopes, is susceptible to wind erosion if left unprotected.

flood plains and terraces

These soils are in elongated, low-lying, nearly level areas along drainageways throughout the county.

This map unit makes up about 8 percent of the county. About 47 percent of the map unit is Wehadkee soils, 13 percent is Altavista soils, 12 percent is Wickham soils, and 28 percent is soils of minor extent.

Wehadkee soils are poorly drained and are on flood plains next to streams. They have a loam surface layer and a sandy clay loam subsoil.

Altavista soils are moderately well drained and are on terraces. They have a sandy loam surface layer and a sandy clay loam or clay loam subsoil.

Wickham soils are well drained and are on terraces. They have a fine sandy loam surface layer and a sandy clay loam subsoil.

Of minor extent in this map unit are the Meggett, Bibb, and Tomotley soils. The Meggett and Bibb soils are in drainageways, and the Tomotley soils are on terraces.

Most Wickham and Altavista soils can be used as cropland, openland and woodland wildlife habitat, and for urban development. The hazard of flooding and a seasonal high water table are the only limitations.

Wehadkee soils are used mainly as woodland. They can be used as habitat for woodland and wetland wildlife. In a few small areas, they are used as pasture. A high water table, frequent flooding, and seedling mortality are the main concerns in management for these uses. Frequent flooding and a high water table limit the use of Wehadkee soils for urban development.

6. Georgeville-Nason

Gently sloping to steep, well drained soils that have a clayey or loamy subsoil; on uplands

These soils are mainly in the northwest and southwest sections of the county. Typically, the areas are mostly broad and gently sloping to strongly sloping. The areas on side slopes above drainageways are steep.

This map unit makes up about 10 percent of the county. About 56 percent of the map unit is Georgeville soils, 27 percent is Nason soils, and 17 percent is soils of minor extent.

Georgeville soils are well drained and are on ridges and side slopes. They have a loam or gravelly loam surface layer and a silty clay loam or silty clay subsoil.

Nason soils are well drained and are on ridges and side slopes. They have a loam surface layer and a clay loam, silty clay loam, or silty clay subsoil.

Of minor extent in this map unit are the Goldsboro, Worsham, Wehadkee, Congaree, Tomotley, Norfolk, and Faceville soils. The Goldsboro and Worsham soils are at heads of drainageways and in upland depressions. The Wehadkee and Congaree soils are in drainageways, and the Tomotley soils are on terraces. The Norfolk and Faceville soils are intermingled with the major soils.

Georgeville and Nason soils are used chiefly as woodland. In some areas, they are used for row crops or as pasture. Erosion is a hazard, but conservation practices, especially conservation tillage, can help to overcome this problem.

The Georgeville and Nason soils that are farmed generally have slopes of less than 6 percent. These are also areas of urban development. The slowly permeable subsoil is a limitation for use as septic tank absorption fields. Georgeville and Nason soils that have slopes of 2 to 15 percent have good potential as habitat for woodland and openland wildlife. The Georgeville soils that have slopes of more than 15 percent are limited for most uses.

7. Wedowee-Worsham-Helena

Nearly level to gently sloping, well drained, poorly drained, and moderately well drained soils that have a clayey or loamy subsoil; on uplands

These soils are mainly in the west central section of the county and around Rocky Mount. Typically, the areas are broad, gently sloping, and vary in size.

This map unit makes up about 8 percent of the county. About 73 percent of the map unit is Wedowee soils, 8 percent is Worsham soils, 4 percent is Helena soils, and 15 percent is soils of minor extent.

Wedowee soils are well drained and are on ridges and side slopes. They have a coarse sandy loam surface layer and a clay subsoil.

Worsham soils are poorly drained and are in upland depressions and at heads of drainageways. They have a loam surface layer and a clay or clay loam subsoil.

Helena soils are moderately well drained and are in upland depressions or on short side slopes along drainageways. They have a coarse sandy loam surface layer and a sandy clay loam, clay loam, or clay subsoil.

Of minor extent in this map unit are the Norfolk and Wehadkee soils. The Norfolk soils are intermingled with the Wedowee soils. The Wehadkee soils are in drainageways.

Wedowee soils are used as cropland and pasture (fig. 4). They are susceptible to erosion. Conservation practices, especially conservation tillage, can overcome this problem.

Helena and Worsham soils are used mainly as woodland, but in some areas, they are used as cropland or pasture. Helena soils can be used as habitat for openland and woodland wildlife, but Worsham soils are best used as habitat for wetland wildlife. Wetness is the main limitation to use of Worsham soils, and Helena soils are susceptible to erosion. Worsham soils do not respond to artificial internal drainage because of the heavy clay subsoil.

Some areas of Wedowee soils have been urbanized, but slopes of more than 4 percent hinder the use of these soils as sites for small commercial buildings, and the clay subsoil slows effluent absorption from septic tanks. Helena and Worsham soils are not commonly used for urban development because of slow permeability, shrinking and swelling, and a seasonal high water table.

8. Dothan-Autryville

Nearly level to gently sloping, well drained soils that have a loamy subsoil; on uplands

These soils are in the south section of the county. Typically, the areas are broad, nearly level to gently sloping, and vary in size.

This map unit makes up about 4 percent of the county. About 37 percent of the map unit is Dothan soils, 13 percent is Autryville soils, and 50 percent is soils of minor extent.

Dothan soils are well drained and are on nearly level uplands. They have a loamy sand surface layer and a sandy clay loam subsoil. A plinthite layer starts between 4 and 6 feet below the surface.

Autryville soils are well drained and are on nearly level to gently sloping uplands. They have a loamy sand surface layer and a sandy loam subsoil. A buried subsurface layer of loamy sand is 4 to 6 feet below the present surface. The subsoil below the buried subsurface layer is sandy clay loam.

Of minor extent in this map unit are the Norfolk, Bonneau, Nankin, Goldsboro, Rains, and Bibb soils. The Norfolk and Bonneau soils are intermingled with the major soils. The Nankin soils are on side slopes, and the Goldsboro and Rains soils are in upland depressions. The Bibb soils are along drainageways.

The Dothan and Autryville soils can be used for farming, urban development, habitat for openland or woodland wildlife, and forestry. They are mainly used as cropland. A perched water table above the plinthite layer affects most uses of Dothan soils. The sandy texture of the Autryville soils causes drought in row crops and permits cave-ins and seepage in shallow excavations.

Figure 4.—Wedowee soils that contain granite bedrock outcrops are used as pasture.

Detailed Soil Map Units

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

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

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

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

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Georgeville gravelly loam, 2 to 6 percent slopes, is one phase in the Georgeville series.

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

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Norfolk-Wedowee complex, 2 to 6 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Norfolk, Georgeville, and Faceville soils, 2 to 8 percent slopes, is an undifferentiated group in this survey area.

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

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

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

AaA—Altavista sandy loam, 0 to 3 percent slopes, rarely flooded. This soil is moderately well drained and nearly level to gently sloping. It is on low terraces along the large streams in the county. Some larger areas of this soil are along the Tar River. The mapped areas are oblong, irregular in width, and are 5 to more than 50 acres.

Typically, the surface layer is grayish brown sandy loam 12 inches thick. The next layer, to a depth of 14 inches, is olive yellow sandy loam that has yellow mottles. The subsoil extends to a depth of 44 inches. It is yellow sandy clay loam in the upper part. The middle part is yellowish brown clay loam that has mottles of light gray, red, and yellowish red. The lower part of the subsoil is light yellowish brown clay loam that has mottles of red, yellowish red, strong brown, and light gray. The underlying material to a depth of 60 inches is mottled brownish yellow, light gray, strong brown, and yellowish red sandy clay loam. Flakes of mica are in the subsoil and underlying material.

Altavista soil has slow surface runoff. Permeability and the available water capacity are moderate. A high water table is between 18 and 30 inches below the surface during the winter. This soil is susceptible to rare flooding after prolonged periods of heavy rainfall. Altavista soils are moderately corrosive to steel and concrete. Plowpans can occur where the topsoil thickness is more than the plow depth.

Included with this soil in mapping are small areas of Tomotley, Wickham, Bibb, and Wehadkee soils. Tomotley soils are in slightly lower positions than the Altavista soil, and Wickham soils are in slightly higher positions. Wehadkee soils are in sloughs that dissect the map unit. Bibb soils have a coarser texture and are where small streams with narrow bottoms drain into the larger stream. A typical mapped area also has soils that have a fine sandy loam surface layer. The included soils make up about 10 percent of the map unit.

This Altavista soil is mainly used for cultivated crops. In a few areas, it is used as pasture or woodland.

Corn, soybeans, tobacco, and small grains grow on this soil. The seasonal high water table and periods of flooding limit the use of this soil for cultivated crops. Field operations can be delayed early in spring and after rain. Artificial drainage is needed for production of crops, such as tobacco, that require well drained conditions.

Where Altavista soils are used as pasture, coastal bermudagrass, fescue, and clovers are grown.

This soil is well suited to use as woodland. The dominant native trees are yellow poplar, sweetgum, red maple, white oak, southern red oak, water oak, loblolly pine, and longleaf pine. The understory is mainly dogwood, sweetbay, sourwood, American holly, waxmyrtle, and sassafras. Wetness is the main limitation for woodland use and management.

Altavista soils can be used for urban and recreational development, but corrosivity is moderate for concrete and steel and the seasonal high water table and hazard of flooding are limitations (fig. 5).

This Altavista soil is in capability subclass IIw and in woodland group 9W.

AbA—Altavista-Urban land complex, 0 to 3 percent slopes, rarely flooded. This map unit consists of Altavista soil and Urban land in areas too small and intricately mixed to be mapped separately at the scale used for the maps in the back of this publication. The complex is about 60 percent Altavista soil and 30 percent Urban land. The Altavista soil is moderately well drained and nearly level to gently sloping. Most areas are in and around Rocky Mount along the Tar River.

The Altavista soil has a grayish brown sandy loam surface layer 12 inches thick. The next layer, to a depth of 14 inches, is olive yellow sandy loam that has yellow mottles. The subsoil extends to a depth of 44 inches. It is yellow sandy clay loam in the upper part. The middle part is yellowish brown clay loam that has mottles of light gray, red, and yellowish red. The lower part of the subsoil is light yellowish brown clay loam that has mottles of red, yellowish red, strong brown, and light gray. The underlying material to a depth to 60 inches is mottled brownish yellow, light gray, strong brown, and yellowish red sandy clay loam. Flakes of mica are in the subsoil and underlying material.

Surface runoff is high because buildings and paved areas are impermeable. It is particularly high during intense rainstorms. Because of runoff, erosion is a hazard if the soil is unprotected and the hazard of flooding increases in low-lying areas. The Altavista soil has moderate permeability and available water capacity. The seasonal high water table is 1.5 to 2.5 feet below the surface except in areas that have been drained. Rare flooding can occur after prolonged periods of heavy rainfall.

Urban land is areas that are covered with streets, buildings, parking lots, railroad yards, and airports. The natural soils were greatly altered by cutting, filling, grading, and shaping during the processes of urbanization. The original landscape, topography, and commonly the drainage pattern have been changed.

Included with this complex in mapping are small areas of Wickham, Congaree, Wehadkee, and Tomotley soils. The Wickham soils are well drained and are in slightly higher positions than the Altavista soil. The Congaree and Wehadkee soils are in the more flood-prone areas. The Tomotley soils are poorly drained and are in wet areas. Also included are small cut and fill areas where the natural soil has been altered or covered. These areas are commonly adjacent to the built-up areas. The included soils make up about 10 percent of the map unit.

This complex has not been assigned to a capability subclass nor to a woodland group.

AuB—Autryville loamy sand, 0 to 6 percent slopes. This soil is well drained and nearly level to gently sloping. It is on Coastal Plain uplands in the southern part of the county. Some large areas of this soil are near High Cross Roads north of Beaver Dam Creek. The mapped areas are 100 to 300 acres.

Typically, the surface layer is grayish brown loamy sand 8 inches thick. The subsurface layer is brownish yellow loamy sand to a depth of 21 inches. The subsoil extends to a depth of 81 inches. It is yellowish brown sandy loam in the upper part. The middle part is yellowish brown sandy loam that has light yellowish brown mottles. The lower part of the subsoil is yellowish brown sandy clay loam that has gray mottles. Between the middle and lower parts of the subsoil is a buried subsurface layer that is yellowish brown loamy sand.

Autryville soil has slow surface runoff. Permeability is rapid in the upper and middle parts of the subsoil and moderate in the lower part. The available water capacity is low. This soil is susceptible to wind erosion, nutrient leaching, drought, and the development of plowpans. It is highly corrosive to concrete.

Included with this soil in mapping are intermingled areas of Bonneau and Blanton soils and areas of soils

Figure 5.—Altavista sandy loam, 0 to 3 percent slopes, rarely flooded, is prone to flooding after periods of heavy rainfall. This soil should not be used as a site for permanent dwellings or farm buildings.

that have a surface layer less than 20 inches thick. The included soils make up 15 percent of the map unit.

This Autryville soil is used mainly for cultivated crops. In some areas, it is used as pasture or woodland.

The major crops on this soil are tobacco, corn, soybeans, sweet potatoes, and cucumbers. Leaching of plant nutrients, soil blowing, and low available water capacity are the main limitations for use as cropland. Winter cover crops, conservation tillage, and windbreaks can help overcome these limitations. Fertilizer, especially nitrogen, should be added in split applications.

Pastures on this soil are coastal bermudagrass, fescue, and clovers.

The dominant native trees are loblolly pine, longleaf pine, hickory, southern red oak, white oak, and post oak. The understory is mainly dogwood, sassafras, American holly, sourwood, and southern waxmyrtle. Moderate seedling mortality as a result of the low available water capacity is the main concern in woodland use and management.

This soil can be used for urban development and recreation, but the corrosivity of this soil and the sandy surface are limitations.

This Autryville soil is in capability subclass IIs and in woodland group 7S.

Bb—Bibb loam, frequently flooded. This soil is poorly drained and nearly level. It is on bottom lands of the Coastal Plain. Some larger areas of this soil are in the Toisnot Swamp in the southern part of the county. The areas are elongated strips that follow the stream channel. The mapped areas are 3 to more than 1,000 acres.

Typically, the surface layer is 11 inches thick. It is very dark grayish brown loam in the upper 7 inches and dark grayish brown sandy loam below that. The underlying material to a depth of 60 inches is dark gray sandy loam in the upper part, light gray sandy loam in the middle part, and mottled light gray, greenish gray, white, and yellowish brown silt loam in the lower part.

Bibb soil has very slow surface runoff. Permeability is moderate, and the available water capacity is high. A high water table is at or near the surface in all but the hottest months. This soil is susceptible to flooding after heavy rainfalls. It is highly corrosive to steel and moderately corrosive to concrete.

Included with this soil in mapping are areas of soils that range from loam to clay loam in the underlying material. A typical mapped area also has soils that have a sand or sandy loam surface layer. The included soils make up to 20 percent of the map unit.

This Bibb soil is used mainly as woodland. A small acreage is in pasture.

This soil is limited for crop production by flooding and wetness. Lack of suitable outlets is a limitation to the installation of drainage systems.

Pastures on this soil are fescue and Ladino clover.

The dominant native trees are sweetgum, water oak, and blackgum. The understory is mainly cedar, American holly, sweetbay, sourwood, reeds, and waxmyrtle. Wetness and flooding adversely affect seedling mortality and the use of harvesting equipment.

This soil is not used for urban development and recreation because of flooding and wetness.

This Bibb soil is in capability subclass Vw and in woodland group 7W.

BnB—Blanton loamy sand, 0 to 6 percent slopes. This soil is moderately well drained and nearly level to gently sloping. It is on broad Coastal Plain ridges. Some large areas of this soil are near Sandy Cross. The areas are generally oblong, variable in width, and are 5 to 40 acres or more.

Typically, the surface layer is brown loamy sand 9 inches thick. The subsurface layer extends to a depth of 49 inches. The upper part is yellow loamy sand that has brown and reddish yellow mottles, and the lower part is pale yellow loamy sand. The subsoil extends to a depth of at least 85 inches. In the upper part, it is strong brown sandy clay loam that has yellowish red and yellow mottles. The lower part is mottled reddish yellow, dark brown, light gray, yellow, and yellowish red sandy clay loam.

Blanton soil has slow surface runoff. Permeability is moderate, and the available water capacity is low in the surface and subsurface layers and moderate in the subsoil. A perched water table is between depths of 60 and 72 inches during the winter. This soil is droughty during the summer. It is highly corrosive to steel and concrete. This soil is susceptible to wind erosion, nutrient leaching, and plowpan development.

Included with this soil in mapping are the Bonneau and Autryville soils. These soils are on the same landscape as the Blanton soil. Also included are some areas of soils that have a sand surface layer. The included soils make up about 25 percent of the map unit.

About half of this Blanton soil is used as woodland. The other half is used as cropland or pasture.

Corn, soybeans, small grains, cucumbers (fig. 6), and sweet potatoes are grown on this soil. Irrigation and split applications of fertilizer are needed to obtain above marginal yields. Leaching of plant nutrients, soil blowing, and low available water capacity are the main limitations. Winter cover crops, conservation tillage, and windbreaks help to overcome these limitations. Pasture grasses adapted to sandy conditions and resistant to drought need to be used.

The dominant native trees on this soil are loblolly pine, longleaf pine, southern red oak, bluejack oak, turkey oak, and live oak. The understory is mainly dogwood, sassafras, and American holly.

This soil can be used for urban development and recreation, but wetness is a limitation for dwellings with basements and septic tank absorption fields. The sandy texture is a poor filter for septic tank effluent and can cause shallow excavations to cave in. Corrosivity affects buried pipes and foundations.

This Blanton soil is in capability subclass IIIs and in woodland group 8S.

BoB—Bonneau loamy sand, 0 to 4 percent slopes. This soil is well drained and nearly level to gently sloping. It is on broad divides on Coastal Plain uplands. Areas of this soil around Sandy Cross are 300 to 400 acres. Areas of less than 100 acres are scattered over most of the southern and eastern parts of the county.

Typically, the surface layer is brown loamy sand about 14 inches thick. The subsurface layer is very pale brown loamy sand to a depth of about 35 inches. The subsoil extends to a depth of at least 93 inches. In the upper part, it is yellowish brown sandy clay loam that has very pale brown and strong brown mottles. The lower part is mottled red, light gray, strong brown, very pale brown, and brownish yellow sandy clay loam.

Bonneau soil has slow surface runoff. Permeability and the available water capacity are moderate. This soil is susceptible to drought, nutrient leaching, wind erosion, and plowpan development. It is highly corrosive to concrete. Because of lateral seepage, a seasonal high

Figure 6.—Cucumbers grow well on soils that have a thick, sandy surface, such as Blanton loamy sand, 0 to 6 percent slopes.

water table is about 50 inches below the surface during the wet season.

Small areas of Norfolk, Blanton, and Autryville soils are included with this soil in mapping. These soils are on the same landscape as the Bonneau soil. The included soils make up to 20 percent of the map unit.

This Bonneau soil is used mostly for cultivated crops. In some areas, it is used as pasture or woodland.

This soil is used for tobacco, corn, small grains, truck crops, soybeans, pasture, and hay. Droughtiness, soil blowing, and leaching of plant nutrients are the main limitations. Winter cover crops, conservation tillage, and windbreaks help to overcome these limitations.

The dominant trees on Bonneau soil are loblolly pine, longleaf pine, white oak, and hickory. The main understory is dogwood, sassafras, and waxmyrtle.

This soil can be used for urban and recreational development, but the sandy surface can hamper some recreational uses. The corrosivity of this soil affects buried pipes and foundations.

This Bonneau soil is in capability subclass IIs and in woodland group 9S.

Co—Congaree fine sandy loam, frequently flooded. This soil is well drained and nearly level. It is on the highest flood plains along many of the larger streams in the county. The mapped areas are elongated and are 5 to 40 acres.

Typically, a few inches of forest litter are on the surface of this soil. The surface layer is very dark grayish brown fine sandy loam 5 inches thick. The underlying material extends to a depth of at least 92 inches. It is brown fine sandy loam in the upper part. The middle part is light yellowish brown and yellowish brown fine sandy loam that has very pale brown and dark brown mottles. The lower part is mottled dark brown, yellowish brown, and light gray fine sandy loam.

Congaree soil has slow surface runoff. Permeability and the available water capacity are moderate. This soil is susceptible to flooding after heavy rainfalls. It is moderately corrosive to steel and concrete.

Included with this soil in mapping are small areas of Wehadkee soils in depressions, some small areas of soils that are moderately well drained, and some soils that have a loamy sand or sandy loam surface layer. The included soils make up 20 percent of the map unit.

This Congaree soil is mostly used as woodland. In some small areas, it is used as pasture.

This soil is suited to use for row crops and pasture. The size and shape of the areas of this soil and the possibility of flooding are limitations to these uses.

The dominant native trees on this soil are loblolly pine, yellow poplar, sweetgum, American sycamore, willow oak, cherrybark oak, eastern cottonwood, and scarlet oak. The understory is mainly dogwood, sourwood, waxmyrtle, and American holly.

This soil is poorly suited to urban and recreational development because of flooding, wetness, and corrosivity.

This Congaree soil is in capability subclass IIw and in woodland group 9A.

DoA—Dothan loamy sand, 0 to 3 percent slopes. This soil is well drained and nearly level to gently sloping. It is on broad upland ridges in the southwestern part of the county. Some large areas of this soil are in the vicinity of Bailey. The soil is at elevations above 250 feet. The areas generally follow the ridge pattern and are up to 100 acres in size.

Typically, the surface layer is brown loamy sand 8 inches thick. The subsurface layer to a depth of 16 inches is loamy sand. It is very pale brown in the upper part and yellow with dark gray and very pale brown mottles in the lower part. The subsoil to a depth of at least 84 inches is sandy clay loam. It is brownish yellow with red mottles in the upper part and mottled red, yellowish red, strong brown, and very pale brown in the middle part. The lower part of the subsoil is mottled yellow, red, weak red, brownish yellow, and white. It contains common plinthite nodules.

Dothan soil has moderate surface runoff. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. The available water capacity is moderate. A slowly permeable layer of plinthite is between 40 and 60 inches below the surface. A perched water table is above the plinthite in all but the hottest months. This soil is moderately corrosive to steel and concrete. It is susceptible to plowpan development where the topsoil thickness is more than the plow depth.

Included with this soil in mapping are areas of Norfolk, Nankin, and Bonneau soils. Norfolk and Bonneau soils are on the same landscape as the Dothan soil, and Nankin soils are on side slopes. Also included are small areas of soils that have hard, red nodules on the surface and soils that have a surface and subsurface layer more than 20 inches thick. The included soils make up 10 to 15 percent of the map unit.

This Dothan soil is mostly used for cultivated crops. In some small areas, it is used as woodland or pasture.

This soil is well suited to use for cultivated crops and pasture. Most agronomic and horticultural crops raised in the county grow on Dothan soil. Warm-season grasses are the dominant pasture plants.

Loblolly pine and longleaf pine are the dominant native trees on this Dothan soil. The understory is dogwood, sassafras, sourwood, and waxmyrtle. There are no significant limitations for woodland use and management.

This soil can be used for recreation and urban development. Wetness and moderately slow permeability in the plinthite layer are limitations for septic tank absorption fields and shallow excavations. Corrosivity of this soil affects buried pipes and foundations.

This Dothan soil is in capability class I and in woodland group 9A.

FaB—Faceville loamy sand, 1 to 6 percent slopes. This soil is well drained and nearly level to gently sloping. It is on ridges and side slopes mainly in the west central part of the county. Some acreage is distributed along uplands adjacent to major streams, and some of the larger areas of this soil are in the vicinity of Stanhope. The mapped areas are irregular in shape and 50 to 100 acres or more.

Typically, the surface layer is yellowish brown loamy sand 10 inches thick. The subsoil extends to a depth of at least 93 inches. It is yellowish red sandy clay loam and sandy clay in the upper part. The middle part is red clay that has brownish yellow and yellowish red mottles, and the lower part is red sandy clay loam that has brownish yellow mottles.

Faceville soil has moderate surface runoff. Permeability is moderate, and the available water capacity is high. This soil is susceptible to erosion if left unprotected, and it is susceptible to plowpan development where the topsoil thickness is more than the plow depth. This soil is moderately corrosive to concrete.

Included with this soil in mapping are Georgeville and Nankin soils. Nankin soils are not as thick as Faceville soil and are on sharp breaks in the landscape. Georgeville soils, which contain more silt, occur at random on the same landscape in areas where the Coastal Plain and Piedmont regions overlap. Also included are some areas of soils that have a sandy loam surface layer, that have gravel on the surface, or that have a yellow subsoil. Some small areas of eroded soils are included; some have a thin surface layer and the subsoil is exposed in others. In these areas, the surface layer is sandy clay or sandy clay loam. Some areas are also included that have slopes of up to 8 percent and that have less clay in the subsoil than normal for Faceville soil. The included soils make up about 30 percent of the map unit.

This Faceville soil is mostly used as cropland and pasture. In some areas, it is used as woodland.

The major crops on this soil are tobacco, corn, soybeans, and small grains. Crop rotation, contour tillage, crop residue management (fig. 7), and grassed waterways reduce erosion. Pasture forages, such as clover, coastal bermudagrass, and fescue, are also grown on this soil.

This soil is well suited to use as woodland. Loblolly pine and longleaf pine are dominant. The understory is mainly dogwood, sassafras, sourwood, and ironwood.

This soil can be used for most urban and recreational development, but the slope and moderate corrosivity to concrete are limitations.

This Faceville soil is in capability subclass IIe and in woodland group 8A.

GeB—Georgeville loam, 2 to 6 percent slopes. This soil is well drained and gently sloping. It is on convex ridgetops in the western half of the county mainly north of State Road 1401 and west of State Road 1004. The areas are oblong and irregular in width. Finger ridges extend perpendicular to the main ridge. The mapped areas range from 3 to 350 acres.

Typically, the surface layer is red loam 6 inches thick. The subsoil extends to a depth of 62 inches. It is red silty clay loam in the upper part and red silty clay in the middle part. The lower part is red silty clay loam and silt

Figure 7.—Conservation tillage is recommended when Faceville loamy sand, 1 to 6 percent slopes, is used for such row crops as corn.

loam that has reddish yellow and weak red mottles. The underlying material to a depth of 78 inches is red silt loam that has reddish yellow mottles.

Georgeville soil has moderate surface runoff. Permeability is moderate, and the available water capacity is high. This soil is susceptible to erosion. It is highly corrosive to steel and concrete.

Included with this soil in mapping are areas of Nason, Norfolk, Faceville, and Nankin soils. Nason soils are in similar positions as those of the Georgeville soil and make up to 15 percent of the map unit. Nankin, Norfolk, and Faceville soils make up to 10 percent of the map unit. Nankin soils are on sharp landscape breaks, and Norfolk and Faceville soils are in similar positions as those of the Georgeville soil. Some areas of the Faceville and Nankin soils are eroded and the surface layer is sandy clay loam or sandy clay. Also included are some eroded areas of soils that have a silty clay loam or silty clay surface layer and areas that have between 5 and 20 percent gravel in the surface layer or have a sandy loam surface because of coastal plain capping.

This Georgeville soil is mainly used as woodland. In some areas, it is used as cropland or pasture.

Corn, soybeans, tobacco, and small grains are grown on this soil. Crop rotation (fig. 8), contour tillage, crop residue management, and grassed waterways can reduce erosion. This soil is also used for hay and pasture forages, such as red clover, white clover, coastal bermudagrass, fescue, and orchardgrass.

The dominant trees on Georgeville soil are loblolly pine, longleaf pine, shortleaf pine, white oak, scarlet oak, and southern red oak. The main understory is dogwood, sourwood, redbud, holly, and black cherry. There are no

Figure 8.—Wheat, followed by soybeans in a double crop system, provides erosion protection throughout the winter and spring on Georgeville loam, 2 to 6 percent slopes.

significant limitations for woodland use and management.

This soil can be used for most urban and recreational development. The clayey subsoil is a limitation for shallow excavations. Moderate permeability is a limitation for septic tank absorption fields. The corrosivity of the subsoil affects buried pipes and concrete foundations.

This Georgeville soil is in capability subclass IIe and in woodland group 8A.

GeC—Georgeville loam, 6 to 10 percent slopes. This soil is well drained and moderately sloping. It is on upland side slopes and slopes breaking to streams throughout the county. Some large areas of this soil are west of State Road 1004 and north of State Road 1401. The mapped areas are generally oblong and irregular in width. Individual areas are 25 to 60 acres.

Typically, this soil has thinner layers than those described for the type location. The surface layer is red loam 6 inches thick. The subsoil extends to a depth of 51 inches. The upper part is red silty clay loam, the middle part is red silty clay, and the lower part is red silty clay loam that has reddish yellow mottles. The underlying material to a depth of 65 inches is red saprolite that crushes to silt loam. It has reddish yellow mottles.

Georgeville soil has rapid surface runoff. Permeability is moderate, and the available water capacity is high. Erosion is a severe hazard if the soil is not protected. This soil is highly corrosive to steel and concrete.

Included with this soil in mapping are small areas of Nason, Gritney, and Nankin soils on the same landscape. These soils make up to 10 percent of the map unit. A typical mapped area also has soils that have between 5 and 20 percent gravel in the surface layer and soils that have an eroded surface layer that is clay loam or silty clay loam. Other areas have soils that are sandy loam because of coastal plain capping and overwash from higher-lying sandy soils. These soils make up 10 percent of the map unit.

This soil is mainly used as woodland. Small acreages are in cultivated crops or pasture.

Corn, soybeans, tobacco, and small grains can be grown on this soil. Intensive conservation practices are needed to reduce rainwater runoff and control erosion. These practices include contour tillage, conservation tillage, crop residue management, terraces, diversions, grassed waterways, crop rotation, and stripcropping. Hay forages, such as clover, coastal bermudagrass, fescue, and orchardgrass, are also grown on this soil.

Loblolly pine, shortleaf pine, longleaf pine, white oak, southern red oak, and scarlet oak are the major canopy trees in forested areas of this soil. The understory is dogwood and red maple.

This soil is limited in its use for urban and recreational purposes by slope, moderate permeability in the subsoil, and corrosivity. Special planning and design are needed to overcome these limitations.

This Georgeville soil is in capability subclass IIIe and in woodland group 8A.

GeE—Georgeville loam, 10 to 25 percent slopes. This soil is well drained and strongly sloping to moderately steep. It is on side slopes breaking to streams in most of the county. Some large areas of this soil are along State Road 1004 north of State Road 1401. The mapped areas are generally oblong and irregular in width. Individual areas are 10 to 25 acres.

Typically, this soil has thinner layers than those described for the type location. The surface layer is red loam 4 inches thick. The subsoil extends to a depth of 39 inches. The upper part is red silty clay loam, the middle part is red silty clay, and the lower part is red silty clay loam that has reddish yellow mottles. The underlying material to a depth of 60 inches is red saprolite that crushes to silt loam. It has reddish yellow mottles.

Georgeville soil has rapid surface runoff. Permeability and the available water capacity are moderate. Erosion is a severe hazard if this soil is not protected. This soil is highly corrosive to steel and concrete.

Included with this soil in mapping are areas of Nason soils on the same landscape. Also included are soils that have stones and gravel on the surface and throughout the soil and soils that have an eroded surface layer that is clay loam or silty clay loam. Soils that have a sandy loam surface layer caused by overwash from higher-lying sandy soils are in a few areas. The included soils make up to 20 percent of the map unit.

This Georgeville soil is mainly used as woodland. In some small areas, it is used as pasture.

This soil is generally not used for row crops. Because of the moderately steep slopes, erosion is a hazard. Pasture and hay forages, such as red clover, crimson clover, Ladino clover, fescue, orchardgrass, and coastal bermudagrass, can be produced on this soil, but intensive management is needed to maintain sod and control erosion. Moderately steep slopes also limit the use of machinery.

This soil is used as woodland, but the slope can limit the use of heavy harvesting equipment. Loblolly pine, shortleaf pine, longleaf pine, white oak, southern red oak, and scarlet oak are the major canopy trees. The understory is dogwood and red maple.

This soil is not used for urban development or for most recreational uses because of slope.

This Georgeville soil is in capability subclass VIe and in woodland group 8R.

GgB—Georgeville gravelly loam, 2 to 6 percent slopes. This soil is well drained and gently sloping. It is on convex ridgetops in the western half of the county mostly north of State Road 1404 along State Road 1004.

The areas are oblong and irregular in width. Finger ridges extend perpendicular to the main ridge.

Typically, the surface layer is reddish brown gravelly loam 6 inches thick. It has more than 20 percent rounded and angular gravel-size fragments of quartz and felsic tuffs. The subsoil extends to a depth of 62 inches. The upper part is red silty clay loam, the middle part is red silty clay, and the lower part is red silty clay loam that has mottles of reddish yellow. The underlying material to a depth of 78 inches is red silt loam that has mottles of reddish yellow.

Georgeville soil has moderate surface runoff. Permeability is moderate, and the available water capacity is high. This soil is susceptible to erosion if left unprotected. It is highly corrosive to steel and concrete. Gravel covers the surface and is in the soil to a depth of 20 inches.

Included with this soil in mapping are Nason, Faceville, Nankin, and Norfolk soils. Nason soils are on the same landscape position as the Georgeville soil and make up to 15 percent of the map unit. Faceville, Nankin, and Norfolk soils make up to 10 percent of the map unit. Faceville and Norfolk soils occupy the same landscape, and Nankin soils are on sharp landscape breaks. Some areas of the Faceville and Nankin soils are eroded, and the surface layer is gravelly sandy clay loam or gravelly sandy clay. Also included are small areas of soils that do not have gravel, that have an eroded surface layer that is gravelly silty clay loam or gravelly silty clay, or that have a sandy loam surface layer caused by coastal plain capping. These soils make up to 10 percent of the map unit.

About half of this Georgeville soil is used as woodland. The rest is used as cropland or pasture.

This soil is used for corn, soybeans, tobacco, and small grains. Crop rotations, contour tillage, crop residue management, and grassed waterways reduce erosion. This soil is also used for hay and pasture forages, such as red clover, white clover, coastal bermudagrass, fescue, and orchardgrass. Although the gravel on this soil helps to prevent erosion, it can damage tillage equipment and mowing machines. In some places, gravel can be removed to improve efficiency of equipment.

The dominant trees on this soil are white oak, southern red oak, scarlet oak, longleaf pine, shortleaf pine, and loblolly pine. The main understory is dogwood, sourwood, redbud, holly, and black cherry. There are no significant limitations for woodland use and management.

This soil can be used for urban and recreational development, but the performance of septic tank absorption fields is affected by the moderately permeable subsoil. Shallow excavations can be affected by the clayey subsoil. Corrosivity affects buried pipes and foundations.

This Georgeville soil is in capability subclass IIe and in woodland group 8A.

GgC—Georgeville gravelly loam, 6 to 10 percent slopes. This soil is well drained and moderately sloping. It is on side slopes and slopes breaking to streams in most of the county. Some large areas of this soil are along State Road 1004 south of State Road 1401. The mapped areas are generally oblong and irregular in width. Individual areas are 25 to 60 acres.

Typically, this soil has thinner layers than described for the type location. The surface layer is reddish brown gravelly loam 6 inches thick. It has more than 20 percent rounded and angular, gravel-size fragments of quartz and felsic tuffs. The subsoil extends to a depth of 51 inches. The upper part is red silty clay loam, the middle part is red silty clay, and the lower part is red silty clay loam that has reddish yellow mottles. The underlying material to a depth of 65 inches is red saprolite that crushes to silt loam. It has reddish yellow mottles.

Georgeville soil has rapid surface runoff. Permeability is moderate, and the available water capacity is high. Erosion is a severe hazard if the soil is not protected. This soil is highly corrosive to steel and concrete. Gravel covers the surface and is in the soil to a depth of 20 inches.

Included with this soil in mapping are Nason and Nankin soils on the same landscape. These soils make up 20 percent of the map unit. Some Nankin soils are eroded and have a surface layer of sandy clay loam or sandy clay, or their gravelly analog. Also included are some areas of soils that do not have gravel, that have an eroded surface layer that is gravelly clay loam or gravelly silty clay loam, or that have a gravelly sandy loam surface layer caused by overwash from higher-lying sandy areas. These soils make up to 10 percent of the map unit.

This Georgeville soil is mainly used as woodland. Small acreages are in cultivated crops or pasture.

This soil is used for corn, soybeans, tobacco, and small grains. Intensive conservation practices are needed to reduce rainwater runoff and control erosion. These practices include contour tillage, conservation tillage, crop residue management, terraces, diversions, grassed waterways, crop rotation, and stripcropping. This soil is also used for red clover, white clover, Ladino clover, coastal bermudagrass, fescue, and orchardgrass. Although the gravel on this soil helps to prevent erosion, it can damage tillage equipment and mowing machines. In some places, gravel can be removed to improve efficiency of equipment.

Loblolly pine, shortleaf pine, longleaf pine, white oak, southern red oak, and scarlet oak are the major canopy trees in forested areas of this soil. The understory is dogwood and red maple.

This soil is limited in its use for urban and recreational purposes by corrosivity, slope, and gravel. Special planning and design are necessary to overcome these limitations.

This Georgeville soil is in capability subclass IIIe and in woodland group 8A.

GgE—Georgeville gravelly loam, 10 to 25 percent slopes. This soil is well drained and strongly sloping to moderately steep. It is on slopes breaking to streams in most of the county. Some large areas of this soil are along State Road 1004 north of State Road 1404. The mapped areas are generally oblong and irregular in width. Individual areas are 10 to 25 acres.

Typically, this soil has thinner layers than described for the type location. The surface layer is reddish brown gravelly loam 4 inches thick. The subsoil extends to a depth of 39 inches. The upper part is red silty clay loam, the middle part is red silty clay, and the lower part is red silty clay loam that has reddish yellow mottles. The underlying material to a depth of 60 inches is red saprolite that crushes to silt loam. It has reddish yellow mottles.

Georgeville soil has rapid surface runoff. Permeability and the available water capacity are moderate. Erosion is a severe hazard if the soil is not protected. This soil is highly corrosive to steel and concrete. Gravel is on the surface and in the soil to a depth of 20 inches.

Included with this soil in mapping are small areas of Nason soils on similar landscapes. Also included are some areas of soils that do not have a gravelly surface, that are eroded and have a gravelly clay loam or gravelly silty clay loam surface layer, or soils that have a gravelly sandy loam surface layer caused by overwash from high-lying areas. Some areas of soils are included that have a shallower profile than typical for Georgeville soils. The included soils make up to 20 percent of this map unit.

This Georgeville soil is mainly used as woodland. In some small areas, it is used as pasture.

This soil is not used for row crops because of slope. Clover, coastal bermudagrass, fescue, and orchardgrass can be produced, but intensive management is needed to maintain sod and control erosion. Slopes and gravel limit the use of machinery.

This soil is used as woodland, but the slope limits the use of heavy harvesting equipment. Loblolly pine, shortleaf pine, longleaf pine, white oak, southern red oak, and scarlet oak are the major canopy trees. The understory is dogwood, red maple, and sassafras.

This soil is not recommended for urban development and for most recreational uses because of slope.

This Georgeville soil is in capability subclass VIe and in woodland group 8R.

GhB—Georgeville-Urban land complex, 0 to 6 percent slopes. This complex consists of areas of Georgeville soil and Urban land that are too small and too mixed to map separately at the scale used for the maps in the back of this publication. The Georgeville soil is well drained and nearly level to gently sloping. About 40 percent of the map unit is Georgeville soil and about 30 percent is Urban land. This map unit is in the towns of Spring Hope and Middlesex.

Georgeville soil has a red loam surface layer 6 inches thick. The subsoil extends to a depth of 62 inches. The upper part is red silty clay loam, the middle part is red silty clay, and the lower part is red silty clay loam and silt loam that has reddish yellow and weak red mottles. The underlying material to a depth of 78 inches is red silt loam that has mottles of reddish yellow.

Urban land is areas that are covered with streets, buildings, parking lots, railroad yards, and airports. The natural soils were greatly altered by cutting, filling, grading, and shaping during the processes of urbanization. The original landscape, topography, and commonly the drainage pattern have been changed.

Surface runoff is high because buildings and paved areas are impermeable. It is particularly high during intense rainstorms. Because of runoff, erosion is a hazard if the soil is unprotected. The Georgeville soil has moderate permeability. The available water capacity is high. This soil is highly corrosive to steel and concrete.

Included with this complex in mapping are Norfolk, Faceville, Udorthents loamy, and Nason soils intermingled throughout. Also included are small areas of soils that have slopes of up to 10 percent. The included soils make up to 30 percent of the map unit.

This map unit has not been assigned to a capability subclass nor to a woodland group.

GoA—Goldsboro fine sandy loam, 0 to 2 percent slopes. This soil is moderately well drained and nearly level. It is on the broad, smooth divides of the Coastal Plain and in upland depressions in more dissected landscapes. Some larger areas of this soil are in the vicinity of the Hickory community. Individual areas are 10 to 25 acres in dissected landscapes and 50 to 150 acres on smooth divides.

Typically, the surface layer is dark grayish brown fine sandy loam 10 inches thick. The subsoil is sandy clay loam. It extends to a depth of at least 93 inches. The upper part is light yellowish brown with yellowish brown mottles. The middle part is mottled light gray, pale yellow, yellowish brown, and red, and the lower part is mottled light gray, red, and yellowish red.

Goldsboro soil has slow surface runoff. Permeability and the available water capacity are moderate. A seasonal high water table is between 24 and 36 inches below the surface during the winter and early in spring. This soil is highly corrosive to concrete and moderately corrosive to steel. It is susceptible to plowpan development where the topsoil thickness is more than the plow depth.

Included with this soil in mapping are some small areas of Norfolk and Rains soils. Norfolk soils are in small, convex areas, and Rains soils are in slight depressions or along drainageways. These soils make up to 20 percent of the map unit. Also included are some areas of soils that have a sandy loam or loamy sand surface layer and soils that have a clay subsoil. These soils make up to 10 percent of the map unit.

This Goldsboro soil is mostly used as cropland. In some small scattered areas, it is used as woodland or pasture.

The major crops on Goldsboro soil are corn, soybeans, tobacco, cucumbers, and small grains. Drainage is required for some water-sensitive crops. Crop residue needs to be left on the surface during fallow to reduce wind erosion.

Where Goldsboro soil is used as woodland, the dominant canopy is loblolly pine, red maple, sweetgum, southern red oak, and white oak. The understory is mainly American holly and dogwood. Wetness is a moderate limitation in planting and harvesting trees.

If this soil is used for recreation and urban development, septic tank filter fields, dwellings with basements, and shallow excavations can be hampered by the seasonal high water table. Some pipes and foundations can be corroded by the subsoil.

This Goldsboro soil is in capability subclass IIw and in woodland group 9W.

GrB—Gritney sandy loam, 2 to 6 percent slopes. This soil is moderately well drained and gently sloping. It is on knolls and convex ridges mostly in the eastern part of the county. Some large areas of this soil are in the vicinity of West Mount. Mapped areas are generally oblong and variable in width.

Typically, the surface is brown sandy loam 7 inches thick. The subsoil extends to a depth of 60 inches. The upper part is yellowish brown sandy clay loam and clay that has yellowish red and light gray mottles. The middle part is mottled strong brown, red, light gray, and yellowish brown clay. The lower part is mottled light gray, yellow, reddish yellow, and red sandy clay loam. The underlying material to a depth of 80 inches is mottled reddish yellow and white sandy loam.

Gritney soil has rapid surface runoff. Permeability is moderately slow and slow, and the available water capacity is moderate. A perched high water table is above the clay subsoil for a short time after extended periods of rainfall. This soil is susceptible to erosion if left unprotected. It is highly corrosive to steel and moderately corrosive to concrete. Shrink-swell potential is high in the lower part of the subsoil.

Included with this soil in mapping are small areas of Norfolk, Goldsboro, and Bibb soils. Norfolk soils are on broader ridgetops than the Gritney soil. Goldsboro soils are in flat depressions, and Bibb soils are in drainageways. Also included are other areas of soils; some have a gravelly surface layer, some are loamy sand, some are more than 20 inches thick, and others are eroded and have a sandy clay loam surface layer. The included soils make up 25 percent of the map unit.

This Gritney soil is mostly used as cropland. In some areas, it is used as pasture or woodland.

This soil is used for soybeans, corn, and small grains. Erosion is the main concern if this soil is cultivated. During wet periods, the perched water table is also a limitation. Conservation tillage and crop residue management help to control runoff and reduce erosion.

Gritney soil is well suited to use as woodland. The dominant trees are loblolly pine and longleaf pine. The understory is dogwood, sourwood, holly, cedar, cherry, and sassafras.

The soil can be used for urban and recreational development, but slow permeability is a limitation for septic tank absorption fields and the high shrink-swell potential is a limitation for dwellings. Roads and landscaping can be hampered by wetness and slow permeability. Buried pipes and foundations can be affected by the corrosivity of the subsoil.

This Gritney soil is in capability subclass IIIe and in woodland group 8A.

GrC—Gritney sandy loam, 6 to 10 percent slopes. This soil is moderately well drained and moderately sloping. It is on upland side slopes mostly in the eastern and central parts of the county. Some larger areas of this soil are in the vicinity of West Mount. The areas are narrow and elongated in the direction of the drainage pattern. Individual areas are 10 to 50 acres.

Typically, the surface layer is brown sandy loam 7 inches thick. The subsoil extends to a depth of 60 inches. The upper part is yellowish brown sandy clay loam and clay that has yellowish red and light gray mottles. The middle part is mottled strong brown, red, light gray, and yellowish brown clay. The lower part is mottled light gray, yellow, reddish yellow, and red sandy clay loam. The underlying material to a depth of 80 inches is mottled reddish yellow and white sandy loam.

Gritney soil has rapid surface runoff. Permeability is moderately slow and slow, and the available water capacity is moderate. A perched high water table is above the clayey subsoil for a short time after extended periods of rainfall. Erosion is a severe hazard if the soil is not protected. This soil is highly corrosive to steel and moderately corrosive to concrete. The shrink-swell potential in the subsoil is high.

Included with this soil in mapping are small areas of Georgeville and Bibb soils. The Georgeville soils are on the same landscape as the Gritney soil, and the Bibb soils are in drainageways. Also included are other areas of soils; some have a gravelly surface layer, some are loamy sand, some are more than 20 inches thick, and others are eroded and are sandy clay loam. The included soils make up about 25 percent of the map unit.

This Gritney soil is mostly used as woodland. In some areas, it is used as pasture or cropland.

This soil is used for corn, soybeans, and small grains. Slope, surface runoff, and the hazard of erosion are the main limitations for cultivated crops. Conservation tillage, contour farming, and crop residue management reduce runoff and erosion.

Gritney soil is well suited to use as woodland. The dominant trees are loblolly pine and longleaf pine. The understory is dogwood, sourwood, holly, cedar, cherry, and sassafras.

This soil is used for urban and recreational development, but slow permeability is a severe limitation for septic tank absorption fields and the high shrink-swell potential is a limitation for dwellings. Corrosivity can affect buried pipes and foundations.

This Gritney soil is in capability subclass IVe and in woodland group 8A.

HeB—Helena coarse sandy loam, 2 to 6 percent slopes. This soil is moderately well drained and nearly level. It is on toe slopes of the Piedmont uplands, mostly in the vicinity of Castalia near Camp Charles and around Rocky Mount. The mapped areas are irregularly shaped and are 3 to 30 acres.

Typically, this soil has a thin layer of undecomposed forest litter and a thin layer of decomposed forest litter and root mat over the surface layer. The surface layer is grayish brown coarse sandy loam 3 inches thick. The subsurface layer is light yellowish brown coarse sandy loam to a depth of about 18 inches. The subsoil extends to a depth of about 48 inches. It is yellowish brown sandy clay loam and clay loam in the upper part. The middle part is yellowish brown clay that has strong brown, red, and light brownish gray mottles, and the lower part is light gray clay that has yellow and red mottles. Yellowish brown clay films are in the middle and lower parts of the subsoil. The underlying material is mottled light gray, brownish yellow, dark bluish gray, and red saprolite that crushes to sandy loam. It extends to a depth of 68 inches.

Helena soil has moderate surface runoff. Permeability is slow, and the available water capacity is moderate. A perched high water table is between 18 and 30 inches below the surface during winter and early in spring. This soil is susceptible to erosion if left unprotected. It is highly corrosive to steel and concrete. The shrink-swell potential in the lower part of the subsoil is high.

Included with this soil in mapping are small areas of Wedowee and Worsham soils. Wedowee soils are on knolls, and Worsham soils are in depressions or along drainageways. Also included are some areas of soils that are eroded and have a sandy clay loam surface layer and other soils that are more shallow to saprolite than normal for Helena soil. The included soils make up about 25 percent of this map unit.

About half of this Helena soil is used as woodland. The rest is used as pasture or cropland.

This soil is used for corn, small grains, soybeans, and tobacco, but artificial drainage may be necessary for crops requiring well drained conditions. Erosion is the main concern if this soil is cultivated. Conservation tillage, grassed waterways, and terraces help to overcome this problem. Coastal bermudagrass, fescue, and clover are the main pasture plants on this soil.

The dominant trees on Helena soil are yellow poplar, white oak, shortleaf pine, and loblolly pine. The main understory is dogwood, holly, sourwood, redbud, and sassafras. Wetness is the main limitation for woodland use.

This soil is limited for urban and recreational development. Slow percolation and wetness hamper septic tank absorption fields, and wetness and shrinking and swelling of the subsoil are limitations for dwellings. The subsoil also corrodes steel and concrete. Local roads and streets are restricted by low strength and shrinking and swelling. Wetness interferes with shallow excavations.

This Helena soil is in capability subclass IIe and in woodland group 8W.

Me—Meggett loam, frequently flooded. This soil is poorly drained and nearly level. It is on flood plains of the Coastal Plain. Some larger areas of this soil are where Swift Creek crosses U.S. Highway 301. The mapped areas are elongated, follow the course of the stream, and are irregular in width. Individual areas are 30 to 60 acres on small streams and range from several hundred acres to more than 1,000 acres on the larger streams.

Typically, the surface layer is dark gray loam 6 inches thick. The subsoil extends to a depth of at least 65 inches. The upper part is light brownish gray clay loam that has strong brown and red mottles. The middle part is grayish brown clay that has yellowish brown and red mottles, and the lower part is light brownish gray clay loam that has yellowish red and dark reddish brown mottles.

Meggett soil has very slow surface runoff. Permeability is slow, and the available water capacity is high. A high water table is at or near the surface most of the year. This soil is subject to flooding after prolonged rains. It is highly corrosive to steel and concrete.

Included with this soil in mapping are Bibb and Wehadkee soils. These soils are either in narrow strips directly adjacent to the stream with Meggett soil behind them, or they are in single areas taking up the whole first bottom for several acres followed by Meggett soil doing likewise. Also included are some areas of soils that have a sandy loam surface layer. The included soils make up to 30 percent of the map unit.

This Meggett soil is used as woodland.

This soil is not used to grow any agronomic and horticultural crops. Artificial drainage is restricted by lack of suitable water outlets, frequent flooding, and the slow permeability of the clayey subsoil.

The dominant trees on this soil are loblolly pine, red maple, black tupelo, yellow poplar, river birch, water oak, and swamp oak. Inaccessibility of heavy harvesting equipment during the wet season and frequent flooding are the main concerns in management of this soil for woodland use.

This soil is not used for urban and recreational development because of the high water table and frequent flooding.

This Meggett soil is in capability subclass Vlw and in woodland group 11W.

NaC—Nankin sandy loam, 2 to 10 percent slopes. This soil is well drained and gently sloping to moderately sloping. It is on Coastal Plain uplands throughout the county. Some large areas of this soil are near the Swift Creek Fire Tower. Some areas have broad, convex ridges with gentle side slopes and other areas are choppy. The choppy areas contain concave and convex slopes. These slopes vary from 4 to 10 percent. The ridgetops are narrow, and slopes range from 2 to 4 percent. Individual areas of this soil are 10 to 50 acres.

Typically, the surface layer is dark brown sandy loam 4 inches thick. The subsoil extends to a depth of 45 inches. It is yellowish red clay loam in the upper and middle parts. Yellow mottles are in the middle part. The lower part is yellowish red sandy clay loam that has brownish yellow and red mottles. The underlying material to a depth of 60 inches is mottled yellowish red, brownish yellow, red, and very pale brown sandy loam.

Nankin soil has moderate to rapid surface runoff. Permeability is moderately slow, and the available water capacity is moderate. Gravel-size ironstones are on the surface and throughout the profile. Erosion is a severe hazard if the soil is not protected. This soil is highly corrosive to steel and concrete.

Included with this soil in mapping are small areas of Faceville, Gritney, and Georgeville soils. Faceville soils are on broader, smoother ridges than the Nankin soil. Gritney soils are in the choppy areas, and Georgeville soils can occur within the full slope range of the map unit where the Nankin soil's boundary is in contact with a map unit containing Georgeville soil. Also included are some eroded soils that have a sandy clay loam or clay loam surface layer. The included soils make up to 25 percent of the map unit.

This soil is used mainly as cropland. In some areas, it is used as woodland or pasture.

This soil is used for corn, soybeans, tobacco, small grains, and pasture plants including coastal bermudagrass, fescue, and clovers. Conservation programs that include conservation tillage help to control erosion. Some of the larger ironstones can impede or damage tillage equipment.

Loblolly pine and longleaf pine are the dominant trees on this soil. The understory is dogwood, sourwood, sassafras, and cherry. There are no limitations to the use of this soil for forestry.

Where this soil is used for urban and recreational development, the moderately slow permeability is a severe limitation for septic tank filter fields and corrosivity affects buried pipes and foundations. Slopes of more than 8 percent impede the construction of some buildings.

This Nankin soil is in capability subclass IIIe and in woodland group 8A.

NnB—Nason loam, 2 to 6 percent slopes. This soil is well drained and gently sloping. It is on broad Piedmont ridgetops mainly in the northern part of the county south of Taylor's Store. Most areas are 50 to 100 acres and are irregular in shape.

Typically, the surface layer is brown loam 5 inches thick. The subsoil extends to a depth of 36 inches. It is strong brown clay loam and reddish yellow silty clay loam in the upper part. The middle part is yellowish red silty clay that has red and reddish yellow mottles, and the lower part is mottled yellowish red and reddish yellow silty clay loam. The underlying material to a depth of 60 inches is mottled reddish yellow, yellowish red, and strong brown saprolite that crushes to silt loam.

Nason soil has moderate surface runoff. Permeability is moderate, and the available water capacity is high. This soil is susceptible to erosion if left unprotected. It is highly corrosive to concrete and moderately corrosive to steel. The shrink-swell potential in the subsoil is moderate.

Included with this soil in mapping are areas of Georgeville and Norfolk soils that are intermingled with the Nason soil. Also included are some eroded soils that have a silty clay loam or silty clay surface layer, other soils that have between 5 and 20 percent gravel on the surface, and some soils that have a sandy loam surface layer caused by coastal plain capping. The included soils make up to 20 percent of the map unit.

About half of this Nason soil is used as woodland. The rest is used as pasture or cropland.

This soil is used for corn, soybeans, tobacco, and small grains. Crop rotations, contour tillage, crop residue management, and grassed waterways reduce erosion. This soil is also used for hay and pasture forages, such as red clover, white clover, Ladino clover, coastal bermudagrass, fescue, and orchardgrass.

The dominant trees on this soil are northern red oak, Virginia pine, shortleaf pine, and loblolly pine. The understory is dogwood, sourwood, redbud, holly, black cherry, and sassafras. There are no significant limitations for woodland use and management.

Where this soil is used for urban and recreational development, septic tank absorption fields are hampered by moderate permeability. The clayey subsoil interferes with shallow excavations. The moderate shrink-swell potential in the subsoil affects dwellings. Local roads and streets are restricted by low strength.

This Nason soil is in capability subclass IIe and in woodland group 8A.

NnC—Nason loam, 6 to 10 percent slopes. This soil is well drained and moderately sloping. It is on upland side slopes and slopes breaking to streams in the Piedmont section of the county. Large areas of this soil occur south of Taylor's Store along State Road 1414 west of State Road 1004. The areas are generally oblong and irregular in width. Individual areas are 25 to 60 acres.

Typically, this soil has thinner layers than those described for the type location. The surface layer is brown loam 2 inches thick. The subsoil extends to a depth of 28 inches. It is strong brown clay loam and reddish yellow silty clay loam in the upper part. The middle part is yellowish red silty clay that has red and reddish yellow mottles, and the lower part is mottled yellowish red and reddish yellow silty clay loam. The underlying material to a depth of 60 inches is mottled yellowish red, reddish yellow, and strong brown saprolite that crushes to silt loam.

Nason soil has rapid surface runoff. Permeability is moderate, and the available water capacity is high. Erosion is a severe hazard if the soil is not protected. This soil is highly corrosive to concrete and moderately corrosive to steel. The shrink-swell potential in the lower part of the subsoil is moderate.

Included with this soil in mapping are small areas of Georgeville soils on the same landscape as Nason soils. Also included are some areas of soils that have between 5 and 20 percent gravel in the surface layer, other soils that have an eroded surface layer that is silty clay loam or clay loam, and soils that have a sandy loam surface layer caused by coastal plain capping or overwash from higher-lying sandy soils. The included soils make up to 20 percent of the map unit.

This Nason soil is used mainly as woodland. Small acreages are in cultivated crops or pasture.

This soil is used for corn, soybeans, tobacco, and small grains, but intensive conservation practices are needed to reduce rainwater runoff and control erosion. These practices need to include contour tillage, conservation tillage, crop residue management, terraces, grassed waterways, crop rotation, and stripcropping. This soil is also used for pasture and hay forages, such as red clover, white clover, Ladino clover, coastal bermudagrass, fescue, and orchardgrass, but intensive management is needed to maintain sod and control erosion.

Loblolly pine, shortleaf pine, northern red oak, and Virginia pine are the major canopy trees on this soil. The understory is dogwood, red maple, and sassafras. There are no major limitations to woodland use and management.

This soil is limited in its use for urban and recreational purposes by slope, depth to bedrock, permeability, corrosivity, and moderate shrink-swell potential.

This Nason soil is in capability subclass IIIe and in woodland group 8A.

NoA—Norfolk loamy sand, 0 to 2 percent slopes. This soil is well drained and nearly level. It is on broad interstream divides of Coastal Plain uplands. Some of the larger areas of this soil are in the vicinity of the Hickory community. The mapped areas range from 3 to 500 acres.

Typically, the surface layer is grayish brown loamy sand about 10 inches thick. The subsurface layer is very pale brown sandy loam to a depth of about 19 inches. The subsoil extends to a depth of at least 82 inches. It is brownish yellow sandy clay loam in the upper part. The middle part is brownish yellow sandy clay loam that has yellowish red and very pale brown mottles, and the lower part is mottled brownish yellow, yellow, red, and gray sandy loam.

Norfolk soil has slow surface runoff. Permeability is moderate, and the available water capacity is high. This soil is susceptible to plowpan formation where the topsoil thickness is more than the plow depth. Wind erosion is a hazard if the soil is not protected. This soil is moderately corrosive to steel and highly corrosive to concrete. A seasonal high water table is 48 to 60 inches below the surface during January to March.

Included with this soil in mapping are small areas of Rains and Goldsboro soils. Also included are some areas of soils that have a sandy loam surface layer and soils that have more clay in the subsoil than typical for Norfolk soil. The included soils make up to 15 percent of the map unit.

This Norfolk soil is used almost exclusively as cropland. Some small scattered acreages are in woodland or pasture.

Corn, soybeans, tobacco, cotton (fig. 9), small grains, peanuts, sweet potatoes, and cucumbers are grown on Norfolk soil. Soil blowing is the only concern in management. Conservation tillage, crop residue management, winter cover crops, and windbreaks reduce soil blowing. Where Norfolk soil is used as pasture, coastal bermudagrass, fescue, and clovers are generally grown.

Loblolly pine and longleaf pine are the dominant canopy on this soil. The understory is dogwood, sassafras, black cherry, and American holly. There are no major limitations to woodland use and management.

Norfolk soils can be used for urban and recreational development, but wetness is a limitation for septic tank absorption fields and dwellings with basements.

This Norfolk soil is in capability class I and in woodland group 8A.

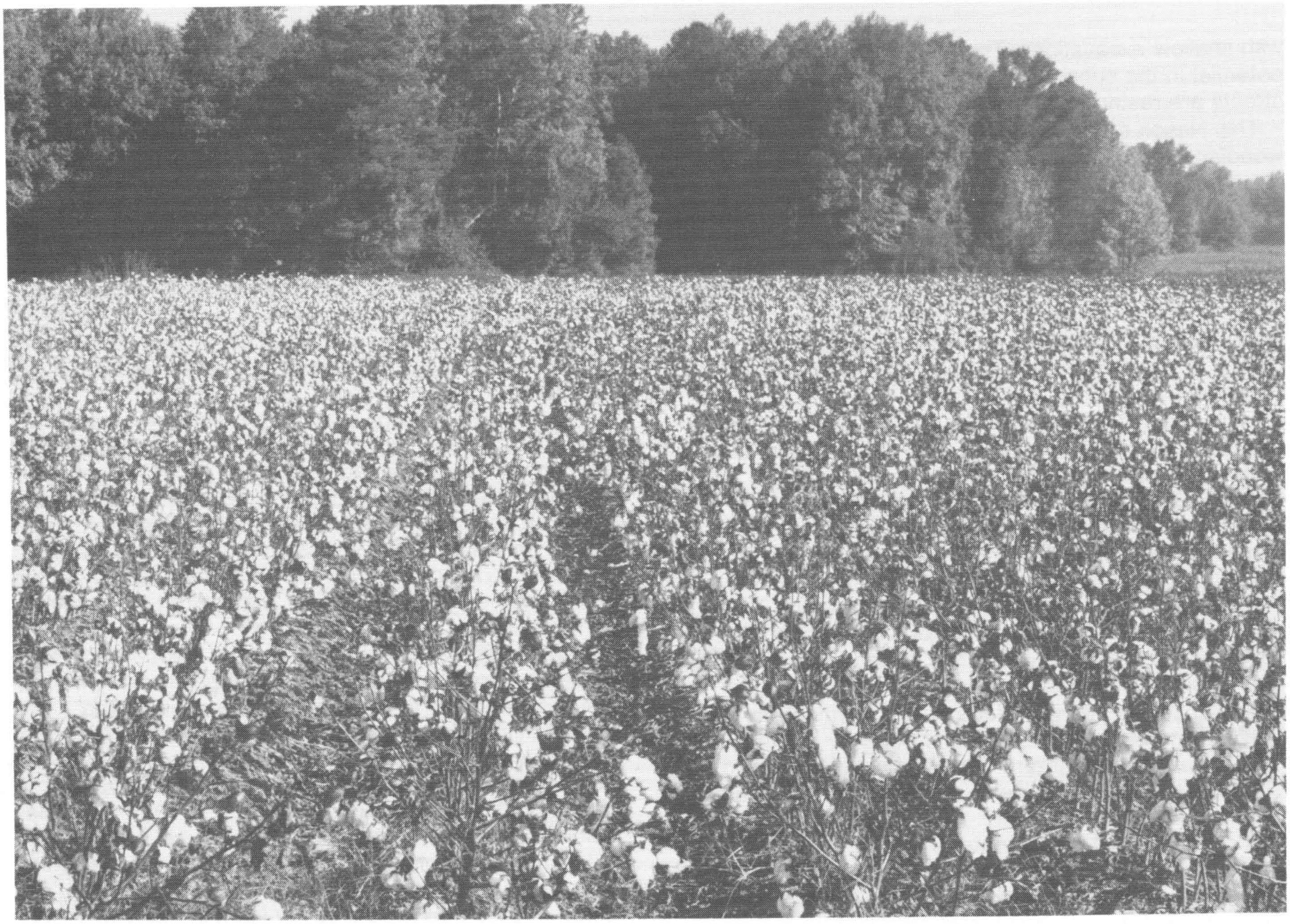


Figure 9.—Norfolk loamy sand, 0 to 2 percent slopes, is well suited to such crops as cotton.

NoB—Norfolk loamy sand, 2 to 6 percent slopes. This soil is well drained and gently sloping. It is on convex ridges and side slopes of the Coastal Plain uplands. Some larger areas of this soil are in the vicinity of Strickland's Crossroads. Some areas in the Piedmont section of the county are 5 to 25 acres.

Typically, the surface layer is grayish brown loamy sand about 10 inches thick. The subsurface layer is very pale brown sandy loam to a depth of about 19 inches. The subsoil extends to a depth of at least 79 inches. It is brownish yellow sandy clay loam in the upper part. The middle part is brownish yellow sandy clay loam that has yellowish red and very pale brown mottles, and the lower part is mottled brownish yellow, yellow, red, and gray sandy loam.

Norfolk soil has moderate surface runoff. Permeability is moderate, and the available water capacity is high. This soil is susceptible to erosion if left unprotected. Plowpans develop where the topsoil thickness is more than the plow depth. This soil is moderately corrosive to steel and highly corrosive to concrete. A seasonal high water table is 48 to 60 inches below the surface in January to March.

Included with this soil in mapping are small areas of Faceville, Gritney, Bonneau, Goldsboro, Rains, and Bibb soils. Faceville soils are near eroded knolls, Gritney soils are on side slopes or sudden twists in the landscape, and Bonneau soils occur side by side with Norfolk soil or they are at the base of slopes in depositional areas. Goldsboro and Rains soils are in depressions marked on the map with a wet spot symbol, and Bibb soils are in the bottoms of upland draws that are too small to show on the map except by a stream symbol. Also included are some areas of soils that have a sandy loam surface layer and some areas of soils that have more clay in the subsoil than is normal for Norfolk soil. Bonneau, Faceville, Goldsboro, and Gritney soils make up to 10 percent of this map unit. Rains, Bibb, and the other included soils make up to 10 percent of the map unit. Georgeville and Appling soils are included with the Norfolk soil in the western half of the county and around Rocky Mount. These included soils are either near eroded knolls, gravelly spots, or are not distinguishable from Norfolk soil. They make up to 10 percent of the map unit in these areas.

Tobacco (fig. 10), corn, soybeans, cotton, small grains, sweet potatoes, and cucumbers are grown on Norfolk soil. Erosion from storm water runoff is the main concern in management. Conservation tillage, crop rotation, contour farming, crop residue management, and grassed waterways help to control erosion and maintain yields. Where Norfolk soil is used as pasture, warm-season grasses are generally grown.

Loblolly pine and longleaf pine are the dominant canopy on this soil. The understory is dogwood, sassafras, black cherry, and American holly.

Where this soil is used for recreational and urban development, corrosivity to pipes and foundations is a limitation. Wetness is a limitation for septic tank absorption fields and dwellings with basements. Slope is a limitation for playgrounds.

This Norfolk soil is in capability subclass IIe and in woodland group 8A.

NpB—Norfolk-Wedowee complex, 2 to 6 percent slopes. This map unit consists of soils that are well drained and gently sloping. The soils are on ridges and side slopes in the vicinity of Matthew's Crossroads and Rocky Mount. They generally have similar textures in the surface layer, but the percent of coarse sand in the surface layer helps to distinguish the soils. Individual areas of these soils are too small or too mixed to map separately at the scale used for the maps in the back of this publication.

Norfolk soil makes up about 40 percent of this map unit. Typically, the surface layer is grayish brown sandy loam 10 inches thick. The subsurface layer is very pale

Figure 10.—Tobacco is one of the main crops on Norfolk loamy sand, 2 to 6 percent slopes.

brown sandy loam to a depth of 19 inches. The subsoil extends to a depth of at least 79 inches. It is brownish yellow sandy clay loam in the upper and middle parts, and mottled brownish yellow, yellow, and red sandy loam in the lower part. Mottles of yellowish red and very pale brown are in the middle part. The surface layer of the Norfolk soil in this map unit has more clay than is typical for the type location.

Wedowee soil makes up about 35 percent of the map unit. Typically, the surface layer is brown coarse sandy loam 10 inches thick. The subsurface layer is yellow coarse sandy loam to a depth of 13 inches. The subsoil extends to a depth of 37 inches. It is reddish yellow clay in the upper part, yellowish red clay in the middle part, and mottled red, strong brown, yellow, and white clay loam in the lower part. Red and yellowish brown mottles are in the upper and middle parts. The underlying material is multicolored saprolite of acid crystalline rocks that crushes to sandy clay loam.

Norfolk and Wedowee soils have moderate surface runoff. Permeability is moderate. The available water capacity is high in the Norfolk soil and moderate in the Wedowee soil. These soils are susceptible to erosion. Norfolk soil is moderately corrosive to steel and highly corrosive to concrete. Wedowee soil is moderately corrosive to steel and concrete. Norfolk soil has a seasonal high water table 48 to 60 inches below the surface during the winter.

Included in this complex are areas of Faceville soils on ridgetops and Gritney soils on side slopes. Also included are areas of soils that have gravel on the surface or have a loamy coarse sand surface layer, some eroded soils that have a sandy clay loam or clay loam surface layer, and a few scattered areas of soils in which the surface layer and upper part of the subsoil developed in Coastal Plain sediment and the lower part of the subsoil from saprolite. Other areas have soils similar to the Norfolk soil, but some are more shallow and others have more clay. Soils similar to the Wedowee soil but that are too red or have less clay are also included. The included soils make up to 25 percent of the map unit.

The Norfolk and Wedowee soils are used mainly for cultivated crops. In some areas, they are used as pasture or woodland.

Corn, soybeans, tobacco, cotton, and small grains are grown on these soils. Because of the range in texture and depth of the surface layer and subsoil, the available water capacity, fertilizer and lime requirements, and rooting depths of these soils vary accordingly from area to area within a field. Erosion is a hazard. Conservation tillage, terraces, and grassed waterways are some of the erosion control practices that can help overcome this problem. Coastal bermudagrass, fescue, and clovers are the main pasture plants.

The dominant trees on the Norfolk soil are loblolly pine and longleaf pine. Loblolly pine, Virginia pine, shortleaf pine, white oak, northern red oak, and southern red oak are dominant on the Wedowee soil. The understory is dogwood, sourwood, holly, cedar, cherry, and sassafras. There are no major limitations to woodland use and management.

The soils of this map unit can be used for urban and recreational development. Installation of septic systems and dwellings with basements require special planning because tile drains can cross several soils and some areas of these soils are more corrosive to foundations than others.

The Norfolk and Wedowee soils are in capability subclass IIe and in woodland group 8A.

NrB—Norfolk, Georgeville, and Faceville soils, 2 to 8 percent slopes. This map unit consists of soils that are well drained and gently sloping to moderately sloping. These soils are on ridges and side slopes along the Fall Line throughout the county but mainly in a 7 to 10 mile wide corridor running north and south through the central part of the county. The major soils of this map unit may not all be present in any one given mapped area, nor do they have a regular pattern of occurrence (fig. 11). In general, the Coastal Plain part of this map unit is dominant. Norfolk soil is dominant in the Coastal Plain except in the area south of North Carolina Highways 97 and 581. In this area, Faceville soil dominates or is codominant with Norfolk soil. Georgeville soil makes up the majority of the Piedmont part of the map unit. The map unit is about 45 percent Norfolk soil, 25 percent Georgeville soil, 15 percent Faceville soil, and 15 percent other soils.

Typically, Norfolk soil has a grayish brown sandy loam surface layer 10 inches thick. The subsurface layer is very pale brown sandy loam to a depth of 19 inches. The subsoil extends to a depth of at least 79 inches. It is brownish yellow sandy clay loam in the upper part. The middle part is brownish yellow sandy clay loam that has yellowish red and very pale brown mottles, and the lower part is mottled brownish yellow, yellow, and red sandy loam.

Typically, Georgeville soil has a brown sandy loam surface layer 7 inches thick. The subsoil extends to a depth of 63 inches. The upper part is red silty clay loam, the middle part is red silty clay, and the lower part is red silty clay loam that has reddish yellow mottles. The underlying material to a depth of 78 inches is red silt loam saprolite that has mottles of reddish yellow.

Typically, Faceville soil has a yellowish brown sandy loam surface layer 10 inches thick. The subsurface layer extends to a depth of 19 inches. It is mixed yellowish brown sandy loam and yellowish red sandy clay loam. The subsoil extends to a depth of at least 93 inches. It is yellowish red sandy clay in the upper part. The middle part is red sandy clay that has brownish yellow and yellowish red mottles, and the lower part is red sandy clay loam that has brownish yellow mottles.

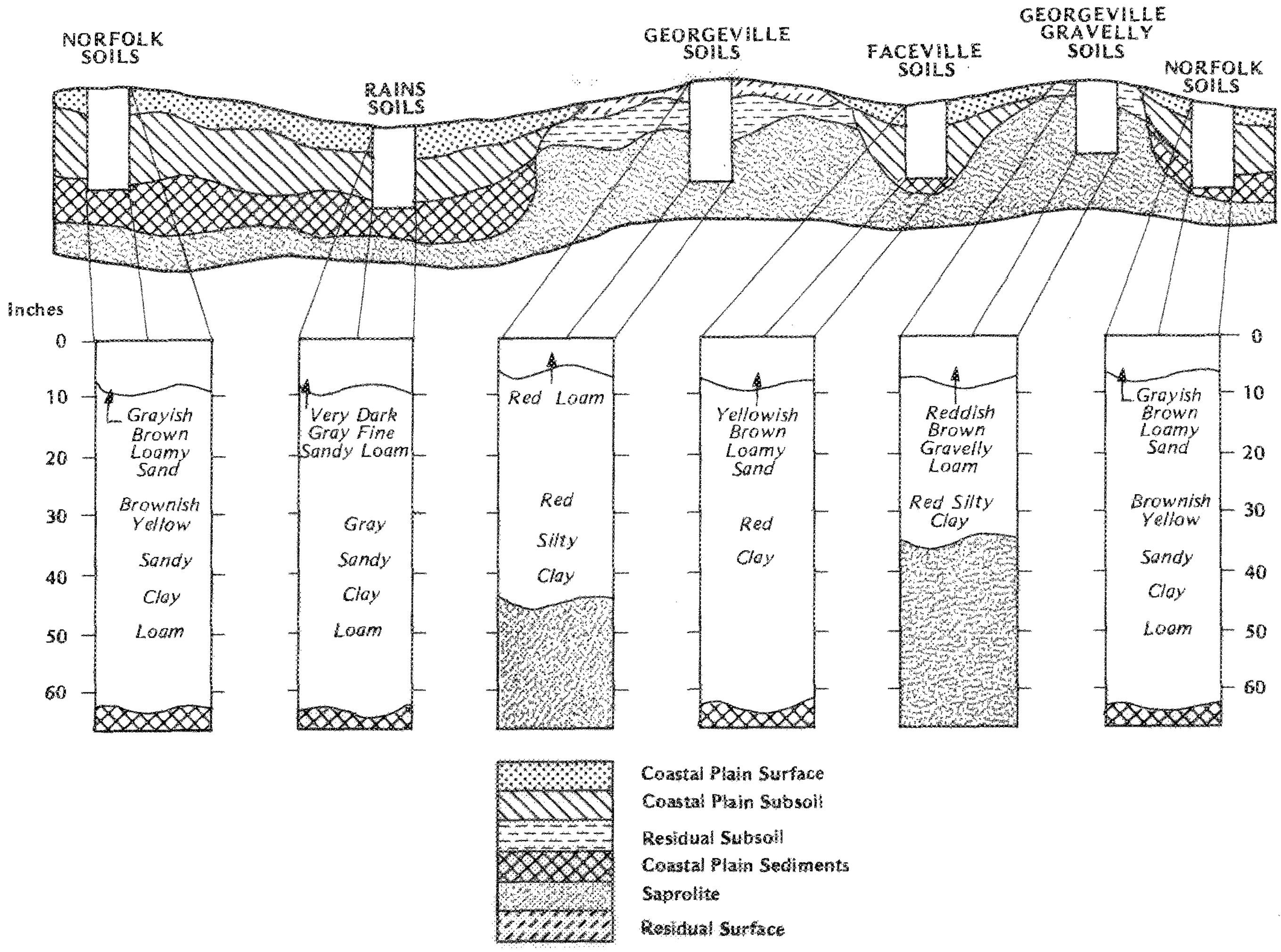


Figure 11.—This cross section of a typical Nash County Fall Line landscape illustrates the relationship of the well drained Norfolk, Georgeville, and Faceville soils and the poorly drained Rains soils. These soils are repeated at random not necessarily in the pattern illustrated.

Norfolk and Faceville soils have moderate surface runoff. Permeability is moderate, and the available water capacity is high. These soils are susceptible to erosion when left unprotected. They are moderately corrosive to steel, and Norfolk soil is highly corrosive to concrete.

Georgeville soil has moderate to rapid surface runoff. Permeability is moderate, and the available water capacity is high. This soil is more susceptible to erosion than Norfolk or Faceville soils. It is highly corrosive to steel and concrete.

Included with these soils in mapping are some areas of Nankin, Nason, and Gritney soils. Nankin and Gritney soils are on slopes of more than 5 percent, and Nason soils occur at random on the landscape. Also included are some areas of soils that have a loamy sand or loam surface layer, some soils that are gravelly in the surface layer and upper part of the subsoil, and some eroded soils that have a sandy clay loam, silty clay loam, or clay loam surface layer. Other areas are included that contain a Coastal Plain soil that has a yellow clay subsoil. A soil where the surface layer and upper part of the subsoil developed in Coastal Plain sediment and the lower part of the subsoil from saprolite is included. In some places, the boundary between these two layers is marked by a gravel layer. In other areas, the Norfolk soil is less than 60 inches to sediment. The included soils make up about 15 percent of the map unit.

The soils in this map unit are used mostly for cultivated crops. In some areas, they are used as pasture or woodland.

Corn, soybeans, tobacco, cotton, and small grains are the major crops on these soils. Erosion is a hazard if these soils are cultivated. Conservation tillage, terraces, grassed waterways (fig. 12), and other practices help to control erosion. The vegetative cover provided by pastures conserves soil. Coastal bermudagrass, fescue, and clover are grown on these soils. Because of the range in textures and depths of the surface layer and subsoil of the soils in this map unit, fertilizer and lime requirements and rooting depths vary from area to area within a field.

The dominant trees are loblolly pine, longleaf pine, southern pine, white oak, southern red oak, and scarlet oak. The understory is dogwood, sourwood, holly, cedar, cherry, and sassafras. There are no major limitations to woodland use and management.

These soils can be used for urban and recreational development. Permeability and the corrosive soil conditions are the main limitations. Installation of septic systems requires special planning because tile drain lines can cross several soil conditions.

The Norfolk, Georgeville, and Faceville soils are in capability subclass IIe and in woodland group 8A.

NuB—Norfolk-Urban land complex, 0 to 6 percent slopes. This complex consists of areas of well drained, gently sloping Norfolk soil and Urban land that are too small and too mixed to map separately at the scale used for the maps in the back of this publication. About 50 percent of the map unit is Norfolk soil, and about 30 percent is Urban land. Most areas are large and are in and around Nashville, Rocky Mount, and other towns in the county.

Typically, Norfolk soil has a grayish brown loamy sand surface layer about 10 inches thick. The subsurface layer is very pale brown sandy loam to a depth of 19 inches. The subsoil extends to a depth of at least 79 inches. It is brownish yellow sandy clay loam in the upper part. The middle part is brownish yellow sandy clay loam that has yellowish red and very pale brown mottles, and the lower part is mottled brownish yellow, yellow, red, and gray sandy loam.

Urban land is areas that are covered with streets, buildings, parking lots, railroad yards, and airports. The natural soils were greatly altered by cutting, filling, grading, and shaping during the processes of urbanization. The original landscape, topography, and commonly the drainage pattern have been changed.

Surface runoff is high because buildings and paved areas are impermeable. Runoff is particularly high during intense rainstorms. Because of runoff, erosion is a hazard if the soil is unprotected. The Norfolk soil has

Figure 12.—Grassed waterways on Norfolk, Georgeville, and Faceville soils, 2 to 8 percent slopes, safely carry runoff water. These soils are highly susceptible to erosion if left unprotected.

moderate permeability. The available water capacity is high. This soil is highly corrosive to concrete and moderately corrosive to steel.

Included with this complex in mapping are small areas of Udorthents, loamy, Bonneau, Goldsboro, Faceville, and Gritney soils. Soils that have slopes of up to 10 percent are included in some areas. The included soils make up about 20 percent of the map unit. Around Rocky Mount, Wedowee soils can make up to 20 percent of the map unit.

This complex has not been assigned to a capability subclass nor to a woodland group.

Ra—Rains fine sandy loam. This soil is poorly drained and nearly level. It is on the lowest landscape position of broad, smooth uplands of the Coastal Plain and in the depressions of dissected landscapes throughout the county. Some larger areas of this soil are in the vicinity of Sharpsburg. The mapped areas range from 3 to 800 acres.

Typically, the surface layer is very dark gray fine sandy loam about 6 inches thick. The subsurface layer is light brownish gray sandy loam to a depth of 11 inches. The subsoil extends to a depth of at least 85 inches. The upper part is light brownish gray sandy loam, the middle part is gray sandy clay loam, and the lower part is gray sandy clay. Mottles of brownish yellow and yellowish brown are throughout the subsoil.

Rains soil has a high water table at or near the surface during all but the driest times of the year. Permeability and the available water capacity are moderate. Rains soil is highly corrosive to steel and concrete. Because surface runoff is slow, water ponds for brief periods in some areas.

Included with this soil in mapping are small areas of Goldsboro and Bibb soils. Goldsboro soils are on slightly higher knolls than the Rains soil. Bibb soils are along narrow streams generally shown on the map by a stream symbol. Also included are some areas of soils that are poorly drained and have a subsoil that has more clay than typical for Rains soil. Other areas are included that have soils that are somewhat poorly drained and soils that have less clay in the subsoil than normal for Rains soil and have a fragipan within 40 inches of the surface. The fragipan is impermeable to air, water, and roots, and it hampers excavations. Other areas of similar soils do not have a fragipan. The included soils make up to 20 percent of the map unit.

This Rains soil is used mainly as woodland. In some areas, it is used as pasture or cropland.

If drained, Rains soil is used for corn, soybeans, and small grains. Wetness hampers field operations for brief periods throughout the growing season on tile-drained land. Water ponds in low spots during these brief wet periods, drowning crops. Water-tolerant pasture plants are needed if this soil is used as pasture.

Loblolly pine and sweetgum are dominant on this soil. The main understory is reeds, greenbrier, gallberry, huckleberry, and vaccinium. Wetness limits seedling vigor and access to heavy harvesting equipment.

This soil can be used for urban and recreational development, but wetness is a severe limitation. The corrosivity of the subsoil can damage buried pipes and foundations.

This Rains soil is in capability subclass IIIw (drained) or IVw (undrained). It is in woodland group 9W.

Rb—Rains-Urban land complex. This complex consists of poorly drained, nearly level Rains soil and Urban land in areas too intricately mixed to map separately at the scale used for the maps in the back of this publication. The complex is about 50 percent Rains soil and 35 percent Urban land. The areas are in the city of Rocky Mount and in some of the smaller towns.

Typically, Rains soil has a very dark gray fine sandy loam surface layer 6 inches thick. The subsurface layer is light brownish gray sandy loam to a depth of 11 inches. The subsoil extends to a depth of at least 85 inches. The upper part is light brownish gray sandy loam, the middle part is gray sandy clay loam, and the lower part is gray sandy clay. Mottles of brownish yellow and yellowish brown are throughout the subsoil.

Rains soil has slow surface runoff. Permeability and the available water capacity are moderate. Unless this soil is drained, it has a high water table at or near the surface during all but the driest part of the year. The subsoil is highly corrosive to steel and concrete. Because surface runoff is slow, water ponds in some areas after a rain.

Urban land is areas that are covered by buildings or are paved. These areas are used for buildings, streets, parking lots, sidewalks, or driveways.

Surface runoff is high because buildings and paved areas are impermeable. It is particularly heavy during intense rainstorms. Because of this runoff, ponding or flooding is a hazard in the lower areas.

Included in this complex in mapping are areas of Bibb, Goldsboro, and Udorthents, loamy, soils. Bibb soils are along natural drainageways, and Goldsboro soils are on slightly higher knolls than the Rains soil. Also included are soils that have a fragipan starting between 20 to 40 inches below the surface and some soils that are somewhat poorly drained.

This complex has not been assigned to a capability subclass nor to a woodland group.

To—Tomotley fine sandy loam, rarely flooded. This soil is poorly drained and nearly level. It is on low stream terraces and in depressions of better drained terraces. Large areas of this soil are along every major stream in the county, and smaller areas are along the tributaries that flow into the major streams. The large areas are irregular in shape, and the small areas are long and narrow. The mapped areas range from 3 to 100 acres in size.

Typically, the surface layer is dark grayish brown fine sandy loam 5 inches thick. The subsurface layer is light gray fine sandy loam. The subsoil extends to a depth of 70 inches. The upper part is light gray sandy clay loam that has gray and brownish yellow mottles. The middle part is gray sandy clay loam that has mottles of light olive brown, light gray, and brownish yellow. The lower part is gray sandy loam that has white mottles. The underlying material to a depth of 80 inches is gray sand.

Tomotley soil has slow surface runoff. Permeability is moderate to moderately slow, and the available water capacity is high. A high water table is at or near the surface during all but the driest times of the year. This soil is susceptible to rare flooding after prolonged rains. Sloughs originating from the flood plain stretch across this soil, and water ponds in these sloughs after a flood. This soil is highly corrosive to steel and concrete.

Included with this soil in mapping are small areas of Bibb, Wehadkee, Meggett, Altavista, and Rains soils. Bibb, Wehadkee, and Meggett soils are in drainageways and depressions. Altavista soils are on knolls that are slightly higher than the rest of the terrace. Rains soil is included where there is no clear break between the upland and the terrace. Also included are areas of soils that have more clay in the subsoil than is typical for Tomotley soil. The included soils make up to 30 percent of the map unit.

This Tomotley soil is mainly used as woodland. Small acreages are in pasture or crops.

This soil can be used for corn, soybeans, and water-tolerant forages if the soil is artificially drained. The hazard of flooding and slow runoff are the main limitations in drained areas.

Sweetgum, water tupelo, and loblolly pine are on this soil. The understory is ironwood, cane, greenbrier, holly, and honeysuckle. Wetness and flooding injure seedlings and impede harvesting equipment.

This soil is not used for urban and recreational development because of wetness and flooding.

This Tomotley soil is in capability subclass IVw and in woodland group 9W.

UD—Udorthents, loamy. This map unit consists of areas where the natural soil layering sequence has been destroyed by earthmoving machines. Such operations as scraping, backfilling, trenching, or excavating have completely altered the characteristics of the soil such that it no longer can be identified with the original series. In this map unit there are four distinct variations of the Udorthents that are related to the way in which the areas were disturbed. These areas in addition to the map unit symbol UD are further identified on the soil map sheets with the following special symbols: Quarry Spoil, Borrow Pit or BP, Landfill or LF, and Cut and Fill or C&F.

The part of the map unit identified with the special symbol *Quarry Spoil* is adjacent to areas where rock has been excavated. The area around the excavated site is either covered with spoil from the hole or scraped down to the subsoil and parent material. The area around the quarry hole can support poor stands of weeds, pines, and hardwood trees. These areas often are gullied. About 126 acres of quarry spoil is in the county.

The part of the map unit identified with the special symbol *Borrow Pit or BP is areas where the topsoil, the subsoil, and the parent material have been dug out and hauled away. These areas are generally in well drained landscapes. Some have been reclaimed by grading and spreading 8 to 12 inches of topsoil over the area. The reclaimed borrow pit areas are used for pasture or row crops. Most areas, however, are neglected and allowed to erode. Some are filled or partly filled with water. Borrow pit areas support poor stands of weeds, pines, and hardwood trees. The topography of the neglected areas is lumpy and has mounds of spoil up to 10 feet high and holes as deep as 30 feet. Gullies are common in abandoned borrow pits. In Nash county, borrow pit areas cover about 1,314 acres.*

The part of the map unit identified with the special symbol *Landfill or LF* is excavated areas consisting of deeply graded trenches that are backfilled with alternate layers of solid refuse and spoil material. The final surface is covered with two to three feet of spoil. Closed landfills have landscapes with 0 to 6 percent slopes and are covered by perennial grasses, pine, and hardwood trees, and annual weeds. Included in this part of the map unit are areas of undisturbed soil and borrow pits along the outer edges. Active landfills have trenches 20 to 30 feet deep that have steep walls that are subject to caving in. About 98 acres of landfills is in the county.

The part of the map unit identified with the special symbol *Cut and Fill or C&F* is areas where the landscape has been altered by removing soil from the high areas and filling in the low areas. Cut and fill areas generally are stabilized with annual and perennial grasses. Pine and hardwood trees grow in older areas. These areas often show rill erosion. Interstate-like interchanges are mapped "cut and fill" in this county. These areas are along Interstate 95, U.S. Highway 64, and U.S. Highway 264. They include some urban areas along the highway strip and some undisturbed soils near the center of each clover leaf. About 932 acres of cut and fill is in the county.

These Udorthent, loamy, areas are not suitable for most building purposes because of slope, subsidence, wetness, instability of the underlying material, or other reasons. Recommendations for use and management require onsite investigation.

This map unit has not been assigned to a capability subclass nor to a woodland group.

Ur—Urban land. This map unit consists of areas 85 percent of which are covered with streets, buildings, parking lots, railroad yards, and an airport. The natural soils were greatly altered by cutting, filling, grading, and shaping during the processes of urbanization. The original landscape, topography, and commonly the drainage pattern have been changed. The areas between facilities are used as parks, lawns, playgrounds, cemeteries, and drainageways. Most of the soils have been altered by cutting and filling. Most of the acreage of this map unit is around Rocky Mount and some of the towns in the county, but isolated areas are throughout the county. Slope is commonly 0 to 6 percent.

Runoff is excessive on Urban land and increases the hazard of flooding in low-lying areas. Waterway and reservoir siltation from areas that are graded and not stabilized is a hazard.

Recommendations for use and management of soil and water in this map unit require onsite examination.

This map unit has not been assigned to a capability subclass nor to a woodland group.

WeB—Wedowee coarse sandy loam, 2 to 6 percent slopes. This soil is well drained and gently sloping. It is on broad ridges and side slopes mainly in the western part of the county. The mapped areas range from 100 to 500 acres or larger near Castalia and from 50 to 100 acres around Rocky Mount and Bailey.

Typically, the surface layer is brown coarse sandy loam 10 inches thick. The subsurface layer is brownish yellow coarse sandy loam to a depth of 13 inches. The subsoil extends to a depth of 39 inches. The upper part is reddish yellow clay that has red and yellowish brown mottles. The middle part is yellowish red clay that has red and yellowish brown mottles, and the lower part is mottled red, strong brown, yellow, and white clay loam. The underlying material to a depth of 63 inches is mottled red, white, yellow, and brownish yellow saprolite that crushes to sandy clay loam.

Wedowee soil has moderate surface runoff. Permeability and the available water capacity are moderate. This soil is susceptible to erosion when left unprotected. It is moderately corrosive to steel and highly corrosive to concrete.

Included with this soil in mapping are small areas of Norfolk and Helena soils. Norfolk soils are on the same landscape as Wedowee soil, and Helena soils are in depressions, on toe slopes, or in drainageways. Also included are small areas of soils that have slope of less than 2 percent, some eroded soils that have a sandy clay loam surface layer, and soils that have gravel on the surface and in the surface layer. Some areas of soils that have a subsoil less than 18 inches thick are also included. The included soils make up about 20 percent of the map unit.

This Wedowee soil is used mostly for cultivated crops. In some areas, it is used as pasture or woodland.

Tobacco, corn, soybeans, cucumbers, and small grains are on this soil. Erosion is a hazard. Crop rotation, contour tillage, conservation tillage, terraces, and grassed waterways reduce erosion. Forage crops on this soil include coastal bermudagrass, fescue, and clovers.

Native trees on Wedowee soil include white oak, southern red oak, loblolly pine, and shortleaf pine. Where managed for timber, loblolly pine is the recommended tree to plant. The understory is dogwood, sourwood, redbud, and holly. There are no major limitations to woodland use and management.

This soil can be used for urban and recreational development, but moderate permeability in the subsoil is a limitation to septic tank absorption fields. Foundations and buried pipes for dwellings require special planning because of the shrink-swell characteristics and the corrosivity of the subsoil.

This Wedowee soil is in capability subclass IIe and in woodland group 8A.

WeC—Wedowee coarse sandy loam, 6 to 10 percent slopes. This soil is well drained and moderately sloping. It is on side slopes breaking to streams mainly in the western part of the county. The larger areas of this soil are in the vicinity of Castalia. The mapped areas range from 5 to 30 acres. They are long, irregular in width, and follow the course of the drainageway.

Typically, the surface layer is brown coarse sandy loam 10 inches thick. The subsurface layer is yellow coarse sandy loam to a depth of 13 inches. The subsoil extends to a depth of 39 inches. The upper part is reddish yellow clay that has red and yellowish brown mottles. The middle part is yellowish red clay that has red and yellowish brown mottles, and the lower part is mottled red, strong brown, yellow, and white clay loam. The underlying material to a depth of 60 inches is mottled red, white, yellow, and brownish yellow saprolite that crushes to sandy clay loam.

Wedowee soil has rapid surface runoff. Permeability and the available water capacity are moderate. Rapid erosion takes place in unprotected areas of this soil. This soil is moderately corrosive to steel and highly corrosive to concrete.

Included with this soil in mapping are small areas of Helena soils on toe slopes and in drainageways. Also included are areas of soils that have slope of more than 10 percent, soils that have a redder subsoil than is typical for Wedowee soil, some eroded soils that have a sandy clay loam surface layer, and soils that have gravel on the surface and in the surface layer. In some places, the coarse sandy loam surface layer is more than 20 inches thick. The included soils make up about 30 percent of the map unit.

This Wedowee soil is used mostly as woodland. In some areas, it is used for cultivated crops or pasture.

Corn, soybeans, tobacco, cotton, and small grains grow on Wedowee soil. Conservation tillage, contour tillage, crop residue management, and other conservation practices are needed to control runoff and erosion. Coastal bermudagrass, fescue, and clovers are the dominant pasture plants on this soil.

The dominant trees on Wedowee soil are white oak, southern red oak, shortleaf pine, and loblolly pine. The main understory is dogwood, sourwood, redbud, holly, and black cherry. There are no significant limitations for woodland use and management.

This soil can be used for urban development and recreation, but the slope, corrosivity of the subsoil, moderate permeability, and moderate shrink-swell potential are limitations.

This Wedowee soil is in capability subclass IIIe and in woodland group 8A.

Wh—Wehadkee loam, frequently flooded. This soil is poorly drained and nearly level. It is on low flood plains along most of the streams in the county. The mapped areas range from 3 to 1,000 or more acres. The areas are elongated in the direction of stream flow. Large areas of this soil are along the Pig Basket and Sapony Creeks.

Typically, the surface layer is grayish brown loam about 5 inches thick. The subsoil extends to a depth of 37 inches. It is light gray and gray sandy clay loam that has mottles in shades of brown, yellow, and gray. The underlying material to a depth of 62 inches is white, yellowish brown, and light gray loamy sand. Brown and black bodies of organic matter occur irregularly with depth.

Wehadkee soil has very slow surface runoff. Permeability and the available water capacity are moderate. A high water table is at or near the surface during all but the driest months. This soil is susceptible to flooding after prolonged rains and to ponding between rains. It is moderately corrosive to steel and highly corrosive to concrete.

Included with this soil in mapping are areas of Bibb, Chewacla, Congaree, Meggett, and Tomotley soils. The Tomotley soils are at a slightly higher elevation than the Wehadkee soil. Chewacla and Congaree soils are next to the streams, and Bibb and Meggett soils are in the same position as Wehadkee soil. The included soils make up about 25 percent of this map unit.

This Wehadkee soil is used mainly as woodland. In some small scattered areas, it is used as pasture.

This soil is not used for crops. It is not drained because a suitable outlet is not available. Water-tolerant forage is needed if this soil is used as pasture.

Wehadkee soil is used for native trees, such as sweetgum, yellow poplar, ash, willow oak, and water oak. The understory is greenbrier, maidencane, waxmyrtle, and American holly. The high water table and frequent flooding increase seedling mortality and hamper heavy harvesting equipment.

This soil is not used for urban and recreational development because of flooding and a high water table.

This Wehadkee soil is in capability subclass VIw and in woodland group 8W.

WkA—Wickham fine sandy loam, 0 to 3 percent slopes, rarely flooded. This soil is well drained and nearly level to gently sloping. It is on high stream terraces. Most areas are rectangular. Some large areas of this soil are along Sandy Creek.

Typically, the surface layer is brown fine sandy loam 9 inches thick. The subsoil extends to a depth of 41 inches. The upper part is yellowish brown sandy loam that has dark yellowish brown and strong brown mottles. The middle part is yellowish red sandy clay loam, and the lower part is yellowish red sandy loam. The underlying material to a depth of 67 inches is strong brown sandy loam that has brownish yellow mottles.

Wickham soil has moderate surface runoff. Permeability and the available water capacity are moderate. This soil is susceptible to rare flooding, and plowpans develop where the topsoil thickness is more than the plow depth. This soil is moderately corrosive to steel and highly corrosive to concrete.

Included with this soil in mapping are Altavista soils in slight depressions. Also included are areas of soils that have a more yellow subsoil than normal for Wickham soil. The included soils make up to 15 percent of the map unit.

This Wickham soil is used mainly as cropland. In some areas, it is used as woodland or pasture.

Corn, soybeans, tobacco, cotton, and small grains are on Wickham soil. The possibility of flooding is the only limitation.

Where this soil is used as woodland, the dominant canopy is southern red oak, yellow poplar, and loblolly pine. The understory is dogwood, redbud, sassafras, ironwood, and American holly. There is no major limitation to woodland use and management.

This soil can be used for urban and recreational development, but the possibility of flooding and the corrosivity of the subsoil are limitations.

This Wickham soil is in capability class I and in woodland group 9A.

WoA—Worsham loam, 0 to 2 percent slopes. This soil is poorly drained and nearly level. It is in upland depressions or at the head of drainageways in the Piedmont section of the county. Most areas are rounded.

Typically, the surface layer is light yellowish brown loam 7 inches thick. It has yellowish brown, white, and gray mottles. The subsoil is gray clay and clay loam to a depth of 67 inches. It has yellowish brown mottles throughout and white mottles in the lower part. The lower part of the subsoil also exhibits pieces of the underlying weathered Carolina slate and angular quartz gravel.

Worsham soil has slow surface runoff. Permeability is very slow, and the available water capacity is high. A high water table is at or near the surface during all but the driest months. Water ponds between rains, and eroded soil is deposited from surrounding well drained areas. This soil is highly corrosive to steel and moderately corrosive to concrete. Shrink-swell potential is moderate in the lower part of the subsoil.

Included with this soil in mapping are some soils that have a sandy loam surface layer and a sandy clay subsoil. The included soils make up to 35 percent of the map unit.

This Worsham soil is used mainly as woodland. Small acreages are in pasture.

This soil is not used for crops because of the high water table. Water-tolerant forages are needed where this soil is used as pasture.

Trees native to this soil include yellow poplar, pin oak, northern red oak, loblolly pine, and Virginia pine. Where this soil is managed for woodland, loblolly pine is the recommended tree to plant. The high water table increases seedling mortality and hampers heavy harvesting equipment. The understory is mainly greenbrier and maidencane.

This soil is not used for urban and recreational development because of the high water table.

This Worsham soil is in capability subclass IVw and in woodland group 9W.

Prime Farmland

In this section, prime farmland is defined and discussed, and the prime farmland soils in Nash County are listed.

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. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, state, and federal levels, as well as individuals, must encourage and facilitate the wise use of our nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to producing food, feed, forage, fiber, and oilseed crops. Such soils have properties that are favorable for the economic production of sustained high yields of crops. The soils need only to be treated and managed using acceptable farming methods. The moisture supply, of course, must be adequate, and the growing season has to be sufficiently long. Prime farmland soils produce the highest yields with minimal inputs of energy and economic resources. Farming these soils results in the least damage to the environment.

Prime farmland soils may presently be in use as cropland, pasture, or woodland, or they may be in other uses. They either are used for producing food or fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water control structures. Public land is land not available for farming in national forests, national parks, military reservations, and state parks.

Prime farmland soils usually get an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not subject to frequent flooding during the growing season. The slope ranges mainly from 0 to 6 percent.

About 179,753 acres, or nearly 52 percent of the county, is prime farmland. The prime farmland is mainly in the northeast and southwest parts of the county but is in many smaller areas scattered throughout the rest of the county. The largest areas are in the Norfolk-Georgeville-Rains, Georgeville-Nason, and Norfolk-Rains general soil map units.

In some parts of the county a recent trend in land use has been the conversion of prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are either wet, more erodible, droughty, difficult to cultivate, or less productive than prime farmland.

The following map units, or soils, make up prime farmland in Nash County. The location of each map unit is shown on the detailed soil maps at the back of this publication. The extent of each unit is given in table 4. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

Soils that have limitations, such as a high water table or flooding, may qualify as prime farmland if these limitations are overcome by such measures as drainage or flood control. In the following list, the measures needed to overcome the limitations of a map unit, if any, are shown in parentheses after the map unit name.

AaA Altavista sandy loam, 0 to 3 percent slopes, rarely flooded
DoA Dothan loamy sand, 0 to 3 percent slopes
FaB Faceville loamy sand, 1 to 6 percent slopes
GeB Georgeville loam, 2 to 6 percent slopes
GgB Georgeville gravelly loam, 2 to 6 percent slopes
GoA Goldsboro fine sandy loam, 0 to 2 percent slopes
HeB Helena coarse sandy loam, 2 to 6 percent slopes
NnB Nason loam, 2 to 6 percent slopes
NoA Norfolk loamy sand, 0 to 2 percent slopes
NoB Norfolk loamy sand, 2 to 6 percent slopes
NpB Norfolk-Wedowee complex, 2 to 6 percent slopes
NrB Norfolk, Georgeville, and Faceville soils, 2 to 8 percent slopes
WeB Wedowee coarse sandy loam, 2 to 6 percent slopes
WkA Wickham fine sandy loam, 0 to 3 percent slopes, rarely flooded

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

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

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

Don Glisson, district conservationist, and Foy D. Hendrix, conservation agronomist, Soil Conservation Service, helped prepare this section.

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

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

Agriculture is important to the economy of Nash County. Because the county has a mild climate and favorable soils, a diverse variety of crops can be produced. Nash County ranked eighth in North Carolina in cash receipts from crops in 1983. Sizeable acreages of tobacco, peanuts, sweet potatoes, and cucumbers help keep the county among the leaders in cash receipts from crops.

Most of the cropland in Nash County is farmed under cash rental agreements. The farmers use large equipment and depend on chemicals for disease, insect, and weed control.

Crops

Tobacco is grown on most soils throughout the county. It is not planted on poorly drained soils, but grows best on Norfolk, Appling, Bonneau, Goldsboro, and Altavista soils. With good management, excellent yields can be produced on Georgeville, Faceville, Nankin, and Gritney soils.

Peanuts are planted almost entirely in the northeast part of the county in the triangle formed by Whitakers, Red Oak, and Rocky Mount. They are primarily on Norfolk, Bonneau, and Goldsboro soils.

Sweet potatoes are concentrated in the southern part of the county. They grow best on Norfolk, Bonneau, Autryville, Dothan, Goldsboro, and Blanton soils.

Cucumbers are planted throughout the county and grow well on most soils except those that are poorly drained. Irrigation is needed for successful yields on droughty soils, such as Bonneau, Autryville, and Blanton soils.

Sunflower acreage is primarily in the eastern part of the county on Norfolk, Goldsboro, Bonneau, and Faceville soils. Two crops of sunflowers can be grown on the same land in one year by planting the first crop early in April and the second crop early in August.

Sunflowers have their greatest potential, however, as a double crop following the harvest of small grains.

Corn, soybeans, cotton, and small grains (wheat, oats, barley, and rye) are grown throughout the county. Production is good on well-managed soils, but it is reduced on droughty soils or in areas that are severely eroded. In addition to harvested small grains, large acreages are planted for winter cover crops following tobacco, peanuts, sweet potatoes, and cucumbers.

Erosion control. Erosion is the major conservation problem on cropland within the county. Of the 22 soils in Nash County, 14 have slope of more than 2 percent and are subject to erosion.

Crop yields are reduced when the topsoil is lost, and sediment clogs stream channels and reduces water quality. Erosion also carries away costly fertilizers and pesticides applied to the land. Control of erosion improves crop productivity and reduces pollution of streams by sediment. This improves water quality for municipal use, recreation, and for use by fish and wildlife.

Erosion can be controlled by using structural or vegetative conservation measures. Structural measures are terraces, diversions, and contour rows (fig. 13). Vegetative measures include managing crop residue, winter cover crops, grassed waterways, and conservation tillage. The more serious erosion problems generally require structural and vegetative measures to reduce erosion to acceptable levels. More detailed information on conservation practices is available from the local office of the Soil Conservation Service.

The current tendency among land users is to control erosion by vegetative measures. The four-row equipment commonly used does not work well with short rows or sharply curved rows. In almost all instances, cropland that exceeds 6 percent slope (subclass IIIe or IVe) needs terraces or diversions and contour rows to keep soil losses below 5 tons per acre annually. Under these

Figure 13.—Contour stripcropping is sometimes used by Nash County farmers to reduce erosion on gently sloping soils.

conditions, good vegetative treatment is needed in addition to structural measures.

Fall plowing that buries all the crop residue is normally not recommended because erosion increases and the land crusts over. Light discing is recommended following corn harvest to permit the kernels left in the field to germinate in the fall and be killed by frost. This prevents volunteer corn from growing in the following crop and provides some winter soil cover. Soybeans are generally harvested after November 1. Soil erosion is reduced by leaving soybean residue on the ground during the winter months. Winter cover crops following tobacco, peanuts, sweet potatoes, cucumbers, and other crops that leave only small amounts of residue can reduce soil erosion.

Wind erosion is a hazard on loamy sand soils, such as the Autryville, Blanton, Bonneau, Dothan, and Norfolk soils. Most soil blowing occurs early in spring. It can be greatly reduced by winter cover crops, conservation tillage, and windbreaks.

Water management. Drainage is needed on many acres of cropland. Artificial drainage has been installed on a large part of the cropland in Nash County, but it needs continual maintenance to be effective. The Goldsboro and Rains soils need to be drained if they are used as cropland. A combination of surface (open ditches) and subsurface (drainage tubing) drainage systems may be needed.

Irrigation systems using water from ponds have been installed on cropland in the county. If enough watershed is available, many soils are suitable for embankment ponds fed by runoff water. Suitable soils include the Dothan, Faceville, Gritney, and Nankin soils on the Coastal Plain and the Georgeville, Helena, Nason, and Wedowee soils on the Piedmont.

Other ponds are excavated and supplied by ground water. These ponds are best suited to sites on soils that are poorly drained and do not have a fragipan. The Rains and Tomotley soils on the Coastal Plain and the Worsham soils on the Piedmont generally can be used for this kind of pond.

Some farmers are able to irrigate from local streams and the Tar River.

Soil Fertility

The soils in Nash County do not have enough natural fertility to produce economic returns on crops. They are naturally acid and require lime to make them usable for most crop production.

Liming requirements are a major concern to the farmer because the acidity level in the soil affects the availability of many nutrients to plants and the activity of beneficial bacteria. Lime also neutralizes exchangeable aluminum and thereby counteracts the adverse effects that high levels of aluminum have on many crops. Lime also adds calcium (calcitic lime) or calcium and magnesium (dolomitic lime) to the soil.

Liming requirement recommendations are based upon soil test determinations. A soil test is used as a guide to indicate how much and what kind of lime should be used. For example, in soils that have a sandy surface layer, magnesium as well as available calcium levels can be low. The desired pH levels also differ depending upon the soil properties and the crop to be grown. These factors are taken into account in the recommendations available through soil testing.

Nitrogen fertilization is required for most crops. It is generally not required for peanuts, clovers, in some rotation of soybeans, or in alfalfa after it has been established. Soil tests are not available, however, for predicting nitrogen requirements. Appropriate rates are discussed in the "Yields Per Acre" section. Because nitrogen can be readily leached from sandy soils, it may be necessary to apply nitrogen on these soils more than once during the growing season.

The need for phosphorus and potassium fertilizers can be predicted from soil tests. Phosphate and potassium requirements need to be determined for specific crops by sampling each field because past applications of these nutrients tend to build up in the soil, and fertilizer requirements change over time.

Chemical Weed Control

Herbicides for weed control in crops is a common practice in Nash County. Successful use leads to less tillage and is an integral part of modern farming. Soil properties, such as organic matter content and texture of the surface layer, affect the rate of herbicide application. Estimates for properties were determined for the soils in the county. Table 16 shows a general range of organic matter content, and table 15 lists the surface texture.

In some cases, the organic matter content projected for the different soils is outside the range shown in table 16. Higher organic matter content can occur in soil areas that have high amounts of animal or manmade waste. Soil areas currently being brought into cultivation can have higher organic matter content in their surface layer than like soils that have been in cultivation for a long time. Conservation tillage can also increase organic matter content in the surface layer. Lower levels of organic matter are common in soils where the surface layer has been partly or completely removed by erosion, land smoothing, or other activities. Therefore, current soil tests are needed to measure organic matter content before determining required herbicide rates. The labels of herbicides show specific application rates based on organic matter content and surface texture.

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 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 insures the smallest possible loss.

A high level of management includes maintaining proper soil reaction and fertility levels as indicated by standard soil tests. Nitrogen rates for corn on soils that have a yield potential of 125 to 150 bushels per acre should be 140 to 160 pounds of nitrogen per acre. Where the yield potential is only 100 bushels per acre, the rates should be 100 to 120 pounds per acre. Application of nitrogen in excess of potential yields is not generally a sound practice. Excess fertilizer not used by a crop can contribute to water pollution as well as an unnecessary expense. Where corn or cotton follow harvested soybeans or peanuts, nitrogen rates can be reduced 20 to 30 pounds per acre, or even more if these crops are no-till planted into a legume winter cover crop.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for use as cropland. 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 rangeland, 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. These levels are defined in the following paragraphs.

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

Class I soils have few limitations that restrict their use.

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

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

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

Class V soils are not likely to erode, but they 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*, or *s* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless a 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); and *s* shows that the soil is limited mainly because it is shallow, droughty, or stony.

There are no subclasses in class I because the soils of this class have few limitations. The soils in class V are subject to little or no erosion, but they have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation. Class V contains only the subclasses indicated by *w*.

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."

Pastures and Forages

Frankie Howe, II, extension agent, North Carolina Agricultural Extension Service, and Don Glisson, district conservationist, and Foy D. Hendrix, conservation agronomist, Soil Conservation Service, helped prepare this section.

Nash County has a wide range of soils that are nearly level to strongly sloping. Many of these soils are intermingled in individual fields. Soils in flat or nearly level areas that are wet most of the year under normal rainfall are adjacent to drier soils in more sloping areas. These landscape conditions can cause drought and excess wetness in close proximity. Livestock producers need pasture species that can exist under these diverse soil conditions and still produce high quality pastures.

The yields of pastures in Nash County can be doubled by using improved plant varieties, irrigating, and applying fertilizer and lime according to soil test recommendations.

In most cases when beginning a management program, a complete fertilizer is required; however, nitrogen generally is the element most needed. The quality and yield of the pasture can be greatly enhanced by the application of nitrogen. Chemical fertilizers are the most popular and convenient source of nutrients, but Nash County also has numerous swine and poultry operations that generate manure that can supplement a pasture fertilization program.

Timing of fertilizer application is very important in getting a maximum yield response from pasture. A general rule for cool-season forages in Nash County is to fertilize February 15 to March 1, before spring growth occurs, and August 15 to September 1, before fall growth occurs. When tailoring a fertilizer program to the specific needs of a pasture, always fertilize before periods of maximum growth. Table 7 can help determine when these peaks occur. Without this kind of timing, the number of grazing days will be below the pasture's potential.

Grasses that perform well on a wide range of soil conditions are needed for pastures in Nash County. Improved bermudagrass is recommended for sandy soils, but they also do well on clayey soils if properly managed. Bermudagrass does not grow well in wet areas. Fescue, like bermudagrass, does better on soils that are well suited to forage production. It can, however, be established and perform very well under some rather adverse soil conditions, such as a high water table or a heavy clay subsoil. For this reason, fescue serves a very important role in the livestock industry of Nash County. It is an excellent companion crop for legumes in pasture mixtures, such as fescue-ladino clover. Legumes need to be seeded with fescue in this county. Legumes add to the palatability and nutritive value of the grass and decrease the need for nitrogen fertilizers. A good rule to follow when establishing a pasture is to plant a mix of one-third warm-season grasses (bermudagrass) and two-thirds cool-season grasses (fescue with the legume companion crop).

Orchardgrass grows very well anywhere fescue thrives except in wet areas. A sizeable acreage of alfalfa has been grown in the county, but a decline in the dairy industry, a high alfalfa weevil population, and some diseases caused this forage plant to be phased out of production. In recent years, however, with new resistant varieties and improved pesticides, alfalfa is again being established on many soils.

Annual grasses (fig. 14) and sorghum are valuable in providing silage and hay. They are generally the secondary crop planted on cropland. Small grains (rye, oats, and wheat) are commonly used on cropland following tobacco or peanuts. The grains provide winter grazing when perennial grasses are dormant. Following harvest of small grains, sorghum-sudangrass mixtures are used to produce hay and silage or to be grazed.

Field gleanings of corn and soybeans following harvest are common and can provide inexpensive forage. However, this practice can reduce crop residue valuable in reducing erosion and compaction. If fields are gleaned, the organic matter removed needs to be replaced by using cover crops, planting grass in rotation, or some other means.

With fescue, bermudagrass, alfalfa, and clovers serving as permanent pastures and receiving support from field gleanings and from annual grasses, such as small grains and sorghums, livestock owners in Nash County can produce year-round pasture and hay.

Woodland Management and Productivity

Edwin J. Young, forester, Soil Conservation Service, and John Pearson, service forester, North Carolina Forest Service, helped prepare this section.

Forest managers are faced with the challenge of producing greater yields from smaller areas of forest land. Meeting this challenge requires an intensity of management and silvicultural practices little dreamed of a few decades ago. Many of the silvicultural techniques now being applied in forestry resemble those long practiced in agriculture: establishing, weeding, and thinning desirable young stands; propagating more productive species and genetic varieties; using short rotations and complete fiber utilization; controlling insects, diseases, and forest weeds; and increasing growth using fertilization and drainage. Even though timber crops require decades to grow, the goal of intensive management is similar to the goal of intensive agriculture—to produce the greatest yield of the most valuable crop as quickly as possible.

Commercial forests cover 177,326 acres, or about 51 percent of the land area of Nash County *(14)*. Commercial forest land is defined as land that is producing or is capable of producing crops of industrial wood and is not withdrawn from timber utilization.

Figure 14.—Sudangrass on Georgeville loam, 2 to 6 percent slopes, is part of the large scale forage production required to feed Nash County's beef cattle herds.

Loblolly pine is the most important timber species in the county. 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 for intensively managing forest land is to determine the productive capacity of the land for several alternative tree species. Comparisons are then made of potential yield and value so that the most productive and valued trees can be selected for each parcel of land. With site and yield information, a forest manager can estimate future wood supplies. These estimates can be used to make realistic decisions about future expenses and profits associated with intensive forest management, land acquisition, or industrial investments.

The productive capacity of forest lands depends on physiography, soil properties, climate, and the effects of past management. Specific soil properties and site characteristics affect forest productivity primarily by influencing available water capacity, aeration, and root development. These properties and characteristics include soil depth, texture, structure, and depth to water table. The net effects of the interaction of these factors determine site productivity. For example, coarse textured soils are generally low in nutrient content and available water capacity. Fine textured soils can be high in nutrient content and have high available water capacity. However, when clays are compacted, aeration is reduced and root growth is inhibited. Species differ in their degree of adaptation to various site conditions. The amount of rainfall and length of growing season also influence site productivity.

Loblolly pine can be planted for timber production on most soils in Nash County, but the Wehadkee, Bibb, and Meggett soils are suited to hardwoods because of the poorly drained conditions and frequent floods. In the eastern half of the county, Rains fine sandy loam produces excellent stands of loblolly pine. In the western half, Georgeville loam (fig. 15), Wedowee coarse sandy loam, and Rains fine sandy loam are primarily used for timber production.

Timber management is advantageous on productive sites for several reasons. Good sites produce a greater quantity and a better quality of yield. Good sites quickly produce large trees, thus rotations are shorter and compound interest on forestry investments is minimized. The productive sites generally are more responsive to intensive silvicultural practices, such as thinning, fertilization, and drainage.

Erosion control is important during and after logging operations. Removing trees is not the main cause of erosion in timber harvesting. Erosion also occurs from access roads, skid trails, and loading areas. Filter strips, or vegetated areas between logging roads and streams, help to prevent sediment from entering streams. Crossing streams with roads or skid paths should be avoided, but where it is necessary, culverts or log bridges should be installed.

Roads and trails need to be on the contour. Water bars, culverts, broad based dips, and out sloping of roads should be used to control erosion. Roads should be built on a grade of less than 10 percent.

Soils vary in their ability to produce trees. Depth, fertility, texture, and the available water capacity influence tree growth. Elevation, aspect, and climate

Figure 15.—A prescribed burn was used on this site to eliminate logging slash and reduce hardwood sprouting. Soil erosion and compaction are reduced by using this technique. Loblolly pine will be planted in this area of Georgeville loam, 2 to 6 percent slopes.

determine the kinds of trees that can grow on a site. Available water capacity and depth of the root zone are major influences of tree growth. Elevation and aspect are of particular importance in mountainous areas.

This soil survey can be used by woodland managers planning ways to increase the productivity of forest land. Some soils respond better to fertilization than others, and some are more susceptible to erosion after roads are built and timber is harvested. Some soils require special efforts to reforest. In the section "Detailed soil map units," each map unit in the survey area suitable for producing timber presents information about productivity, limitations for harvesting timber, and management concerns for producing timber. The common forest understory plants are also listed. Table 8 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 forest management.

The first tree listed for each soil under the column "Common trees" 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.

Table 8 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. 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 for use and management. The letter *R* indicates a soil that has a significant limitation because of steepness of slope. The letter *W* indicates a soil in which excessive water, either seasonal or year-round, causes a significant limitation. The letter *S* indicates a dry, sandy soil. The letter *A* indicates a soil that has no significant restrictions or limitations for forest use and management. If a soil has more than one limitation, the priority is as follows: R, W, and S.

Ratings of the *erosion hazard* indicate the probability that damage may occur if site preparation activities or harvesting operations 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 of harvesting and reforestation operations, or use of specialized 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, or susceptibility of the surface layer to compaction. As slope gradient and length increase, it becomes more difficult to use wheeled equipment. On the steeper slopes, tracked equipment must be used. The rating is *slight* if equipment use is restricted by soil wetness for less than 2 months and if special equipment is not needed. The rating is *moderate* if slopes are steep enough that wheeled equipment cannot be operated safely across the slope, if soil wetness restricts equipment use from 2 to 6 months per year, or if special equipment is needed to avoid or reduce soil compaction. The rating is *severe* if soil wetness restricts equipment use for more than 6 months per year or if special equipment is needed to avoid or reduce soil compaction. Ratings of *moderate* or *severe* indicate a need to choose the most suitable equipment and to carefully plan the timing of harvesting and other management operations.

Ratings of *seedling mortality* refer to the probability of death of 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 and duration of the water table, and rooting depth. Mortality generally is greatest 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, and installing surface drainage.

The potential productivity of *common trees* on a soil is expressed as a *site index*. Common trees are listed in the order of their observed general occurrence. Generally, only two or three tree species dominate.

The soils that are commonly used to produce timber have the yield predicted in cubic feet and board feet. The yield is predicted at the point where mean annual increment culminates. The productivity of the soils in this survey is mainly based on loblolly pine, but other species are used where appropriate.

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 50 years. This index applies to fully stocked, even-aged, unmanaged stands. The procedure and technique for determining site index are given in the site index tables used for the Nash County soil survey *(3, 4, 5, 6, 8, 9, 11)*.

The *productivity class* represents an expected volume produced by the most important trees, expressed in cubic meters per hectare per year. Cubic meters per hectare can be converted to cubic feet per acre by multiplying by 14.3. It can be converted to board feet by multiplying by a factor of about 71. For example, a productivity class of 8 means the soil can be expected to produce 114 cubic feet per acre per year at the point where mean annual increment culminates, or about 568 board feet per acre per year.

Trees to plant are those that are used for reforestation or, if suitable conditions exist, natural regeneration. They are suited to the soils and will produce a commercial wood crop. Desired product, topographic position (such as a low, wet area), and personal preference are three factors of many that can influence the choice of trees to use for reforestation.

Recreation

Nash County offers a variety of recreational activities *(7)*. Rocky Mount has parks, playgrounds, swimming pools, golf courses, roller skating rinks, theaters, bowling alleys, tennis courts, restaurants, and other public attractions. Most towns have some of these things. Most of these facilities are built on Norfolk, Altavista, Rains, Wedowee, and Georgeville soils. The Tar River Reservoir is popular for pleasure boating, skiing, and fishing. The reservoir covers the flood plain and much of the terrace in that area. Many creeks, farm ponds, and mill ponds offer warm-water fishing. Small and big game are abundant in Nash County. Hunting clubs lease thousands of acres, and many thousands more are available on a lease or written permission basis. Lake Royale, located in the Piedmont part of the county, is a private community that has summer homes, campgrounds, and water sports. Several riding stables are in the county. The Country Doctor Museum, in Bailey, displays many instruments used by doctors of the 19th Century.

As population increases in Nash County, these facilities will be used even more intensively than they are now. This increased use can tax existing recreational facilities and cause more to be built *(7)*. Soils information is available to help plan new facilities and improve existing ones.

In table 9, the soils of the survey area are rated 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 sewerlines. 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 use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the depth, duration, intensity, and frequency of flooding is essential (fig. 16).

In table 9, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 9 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 12 and interpretations for dwellings without basements and for local roads and streets in table 11.

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, stones, or boulders that increase the cost of shaping sites or of building access roads and parking areas.

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

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

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

Figure 16.—Sunset Park in Rocky Mount is on Altavista sandy loam, 0 to 3 percent slopes, rarely flooded. Locating a park on this flood-prone soil is a wise land use.

surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Mike Scruggs, wildlife biologist, and J. Phil Edwards, biologist, Soil Conservation Service, helped prepare this section.

Deer are throughout Nash County, but their greatest concentrations are in the northern part of the county. They live in woodland associated primarily with Georgeville, Rains, Meggett, and Wehadkee soils. The best approach to deer management in Nash County involves proper timber management including thinning and controlled burns (fig. 17).

Nash County also has abundant small game and numerous nongame species that thrive best in transition zones maintained in early successional stages. Transition zones are field borders, woodlot perimeters, roadsides, ditches, power line rights-of-way, and windbreaks. They are on all soils in the county and can be managed with little expenditure of time or money. Nash County, with its numerous small woodlots and moderate sized farms, has thousands of miles of transition zones available for wildlife management. This management can be accomplished by controlled burning, wildlife plantings, disking, mowing, or by leaving unharvested crops along field edges.

Information on small game management, onsite technical guidance, and wildlife planting materials are available from the North Carolina Wildlife Resources Commission and the Soil Conservation Service.

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

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be

Figure 17.—This prescribed burn is in a woodlot on Georgeville loam, 2 to 6 percent slopes. This practice is recommended to improve timber production and wildlife habitat.

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 flood hazard. 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, flood hazard, 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 flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, and beggarweed.

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, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are hawthorn, 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 and redcedar.

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, rushes, sedges, and reeds.

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

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

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, meadowlark, field sparrow, cottontail, 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 woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

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

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. The ratings are given in the following tables: 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, and 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 must 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 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

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

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

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

Building Site Development

Table 11 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

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

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

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, 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 or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 12 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 12 also shows the suitability of the soils for use as daily cover for landfills. 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 or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

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

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 12 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 or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

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 ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 12 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, depth to a 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 type 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 type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

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

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 13 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

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

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

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

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is 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. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 13, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

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

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

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

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

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

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

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal 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 releases a variety of plant-available nutrients as it decomposes.

Water Management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives 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.

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

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding;

subsidence of organic layers; and potential frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

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 the 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 or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

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

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

Soil Properties

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

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics. These results are reported in table 18.

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 characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, 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 15 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 "Soil Series and Their Morphology."

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

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, 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. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 18.

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

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

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

Physical and Chemical Properties

Table 16 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 influence the soil's adsorption of cations, moisture retention, 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 earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 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, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

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.

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 change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. 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 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur 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 16, 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 of 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 17 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 intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

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

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

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

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

Flooding, the temporary 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 17 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* means that flooding is unlikely but possible under unusual weather conditions (there is a near 0 to 5 percent chance of flooding in any year). *Occasional* means that flooding occurs infrequently under normal weather conditions (there is a 5 to 50 percent chance of flooding in any year). *Frequent* means that flooding occurs often under normal weather conditions (there is more than a 50 percent chance of flooding in any year). *Common* is used when classification as occasional or frequent does not affect interpretations. Duration 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). The time of year that floods are most likely to occur is expressed in months. November-May, for example, means that flooding can occur during the period November through May. 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 absence of distinctive horizons, which are characteristic of soils that are not subject to flooding.

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

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 17 are the depth to the seasonal high water table; the kind of water table, that is, *perched, artesian*, or *apparent;* and the months of the year that the water table commonly is highest. A water table that is seasonally high for less than 1 month is not indicated in table 17.

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. An *artesian* water table is under hydrostatic head, generally below an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole. 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.

The two numbers in the "High water table-Depth" column 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 the water table exists 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 creates a severely corrosive environment. 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.

Engineering Index Test Data

Table 18 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are typical of the series and are described in the section "Soil Series and Their Morphology." The soil samples were tested by North Carolina Department of Transportation, Division of Highways, Materials and Tests Unit.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are: AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Unified classification—D 2487 (ASTM); Mechanical analysis—T 88 (AASHTO), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 423 (ASTM); Plasticity index—T 90 (AASHTO), D 424 (ASTM); and Moisture density, Method A—T 99 (AASHTO), D 698 (ASTM).

Formation of the Soils

Factors of Soil Formation

Soils are the product of the combined effects of parent material, climate, plant and animal life, relief, and time. The characteristics of a soil at any specific place is dependent upon a combination of these five environmental factors at that place. All of these factors affect the formation of every soil, but in many places one or two of the factors dominate and fix most of the properties of a particular soil.

Parent Material

The soils of Nash County are formed from soft, loose mineral matter called parent material. Parent material is produced from the physical and chemical breakdown of rocks. It either accumulates in place or is washed into an area by streams or the ocean.

Many of the characteristics of the parent material are imparted to the soil. For example, the kind and amount of clay in a soil is a direct result of the minerals that occur in the parent material. The kind of clay influences how well a soil reacts to fertilizer or how stable the soil is for building upon. The amount of clay affects such things as workability, fertilizer and water retention, and septic tank performance. Parent material is a factor in how much silt and sand is in a soil, the degree of acidity, color, erodibility, topography, the kind of surface the soil develops, and other things that affect the use and management of the soil.

Marine sediment is distributed throughout Nash County either as surficial deposits over residuum or as deep Coastal Plain deposits. Norfolk, Faceville, Nankin, Dothan, Bonneau, Gritney, Goldsboro, and Rains soils formed in this sediment.

Alluvium is distributed throughout the county along narrow drainageways and major streams. Alluvial deposits are underlain either by residuum or marine sediment. The Bibb, Wehadkee, Altavista, Wickham, and Tomotley soils formed from alluvium.

Residuum is in the west and central parts of the county. Widely scattered areas of residuum are also in the eastern half of the county. Part of the residuum in Nash County is derived from the Carolina slates. The Georgeville, Nason, and Worsham soils formed from this residuum. Other residuum is derived from acid-crystalline rocks. The Wedowee and Helena soils are associated with this residuum.

Climate

Climate affects the physical, chemical, and biological relationship in the soil primarily through the influences of precipitation and temperature. Water chemically dissolves rocks, minerals, and organic matter releasing the nutrients needed for life in the soil. The physical transport of organic matter, soil particles, and nutrients through the soil is accomplished by water. Biological relationships among plants and other soil life are totally dependent upon the presence of water. The amount of water that actually moves through the soil to perform these functions is dependent upon the amount and duration of rainfall, relative humidity, evapotranspiration, and the length of the frost-free period. Temperature influences the kind and growth of organisms and the speed of physical and chemical reactions in the soil.

Nash County is warm and humid. Average monthly precipitation is well distributed throughout the year. The relatively mild temperatures and abundant moisture encourage vegetative growth, induce worms and other soil life, cause rapid decomposition of organic matter, and enhance soil chemical and physical reactions.

Climate affects three features of Nash County soils. The loamy surface of most soils in the county is a result of percolating water relocating the clay from the upper horizons to deeper parts of the profile. The low organic matter content is a direct result of extreme summer temperatures, which cause rapid disintegration of organic residue. The organic matter that does remain is what is left of the large quantities of organic litter produced by plants, soil animals, and insects that proliferate in the favorable climate. The climate and the parent material are responsible for the acid conditions within the soil. The low natural fertility, although inherited from the parent material, is further intensified by rainfall. Only through the biocycling action of deep-rooted plants, such as trees, are soluble bases concentrated in the upper part of the soil profile.

Plant and Animal Life

Plant and animal life, in or on the soil, modify to some extent the formation of soil. The kinds and number of organisms that exist are determined to a large extent by the climate and to a varying degree by parent material, relief, and age of the soil. Bacteria, fungi, and other microscopic organisms aid in weathering rock and decomposing organic matter. The large plants and animals furnish organic matter and transfer elements from the subsoil to the surface layer.

The activity of fungi and micro-organisms in the soils in Nash County is generally confined to a thin layer near the surface. Earthworms and other small invertebrates carry on a slow, continued cycle of soil mixing, mostly in the upper few inches of the soil. Rodents have had little effect on soil formation in this county.

Nash County was originally covered by a forest of hardwoods and conifers. These trees took up elements from the subsoil and added these nutrients in organic matter deposited on the surface. Here the leaves, twigs, roots, and eventually the whole plant decayed and was acted on by micro-organisms, earthworms, and other forms of life and by direct chemical reactions.

Plants and animals for the most part determine the kinds of organic matter added to the soil and the way in which it is incorporated into the soil. They transfer nutrient elements and, in many places, transport soil material from one part of the soil to another. Plants and animals also affect soil structure; porosity, and the gains and losses in organic matter, nitrogen, and other plant nutrients. They can also affect some other soil characteristics.

Organic matter decays rapidly in well drained soils. Excess moisture retards oxidation of organic matter; therefore, decay is slow in wet soils. Generally, the wetter the soil, the greater the accumulation of organic matter.

Time

The horizons in a soil profile take a long time to develop. This development proceeds at a rate dependent upon climate, topography, parent material, and the activity of plants and animals.

The soils of Nash County vary in age. The oldest soils are deep, have well defined horizons, and are on smooth uplands. The Norfolk, Rains, Goldsboro, Georgeville, Faceville, Wedowee, and Nason soils are mature. Young soils are on slopes where erosion erases soil development. These soils are shallow and have distinct but few horizons. Some examples are the Nankin and Gritney soils. Soils are also considered young when they exist in recent alluvial deposits. They can be shallow or deep and have horizons that are faint or nonexistent. The Bibb, Wehadkee, and Congaree soils are immature.

Topography

The topography in Nash County is a result of slope retreat and the dissection of the original land surface by the major streams and their tributaries. These factors are affected by the hardness of the bedrock and the amount of uplift in the area. Topography, in turn, influences soil formation by causing differences in internal drainage, surface runoff, soil temperature, and to a lesser extent the kinds of vegetation growing on the soil.

Internal drainage of the soil is affected by its position on the landscape. In sloping areas, soils on hilltops and side slopes are well drained, and soils at the base of slopes and in the flat areas between toe slopes have internal drainage problems. On flat divides, soils next to the streams are well drained and soils farther back from the streams have internal drainage problems.

Surface runoff increases as slope increases. Soils that form on steep slopes are thin because even under undisturbed natural vegetation, the soil erodes away almost as rapidly as it forms. Surface runoff also reduces plant cover on sloping land, increasing susceptibility to erosion. Soils at the base of slopes are thicker because runoff water deposits soil material eroded from the slope. Soils on the flatter ridgetops are thick because water does not move across the ridgetops with great speed; thus more water percolates, and natural erosion is less.

Topography influences soil temperature through aspect. South- and west-facing slopes, for example, warm up faster in the spring than north- and east-facing slopes. Temperature, in turn, affects soil formation by regulating plant and animal activity. Plant species differ somewhat with temperature differences on the landscape. Microbial and insect populations are determined by temperature.

Geology

Dr. P.M. Brown, geologist, North Carolina Department of Natural Resources and Community Development, helped prepare this section.

Nash County is located along the fall line that marks the boundary between the Piedmont Province to the west and the Coastal Plain Province to the east. The fall line is an imaginary line or zone extending through Salem, Nashville, and Bailey. The rocks of the Piedmont are relatively old (about 350 million years old), are hard, and are resistant to decomposition by the action of weathering agents. In contrast, the rocks of the Coastal Plain are several hundred million years younger, are relatively soft, and are less resistant to decomposition than those of the Piedmont. Alluvium, the youngest geologic material in the county, is along all streams and tributaries. These areas were built by floodwaters that deposited sand, silt, clay, and gravel along the stream channel.

The Piedmont is underlain chiefly by various rocks of volcanic origin, namely ash and lava flows. This volcanic material was deposited in water and on dry land. It was buried and underwent physical and chemical changes and became rocks. When these rocks were exposed to the atmosphere, the surface was softened by wind, water, and other forces to a depth of several feet. This soft rock is called saprolite. The soils in the Piedmont formed from this saprolite. Some examples are Georgeville soils, which have a red silty clay subsoil, and Nason soils, which have a yellow silty clay subsoil. Several times in the past, the volcanic rocks were intruded by igneous rocks. In Nash County, diabase and several kinds of granite occur. Large granitic tracts are in the area between Spring Hope and Castalia, near Bailey, and in Rocky Mount. Small tracts are scattered along the fall line. Diabase generally is a line of boulders on the surface or in the soil in areas underlain by volcanic rocks. In Nash County, it is not significant in terms of soil formation, but granites are. When granites were exposed to the atmosphere in the geologic past, saprolite formed. Soils then developed in the saprolite. Some examples of soils that formed from granite saprolite are Wedowee soils, which have a yellow clay subsoil, and Helena soils, which have a mottled gray and yellow clay subsoil.

The eastern part of the county lies in the Coastal Plain Province. In this area, the volcanic and igneous rocks exposed in the western part of the county are buried beneath deposits of sands, silts, clays, and gravel less than one million years old. These deposits are a mix of stream and ocean sediments. When these sediments were exposed to the atmosphere, soils began to develop. Examples of soils formed in these sediments are Norfolk, Bonneau, Blanton, Goldsboro, and Rains soils. The Norfolk, Bonneau, and Blanton soils have a yellow sandy clay loam subsoil. Goldsboro soils have a mottled yellow and gray sandy clay loam subsoil, and Rains soils have a gray sandy clay loam subsoil. In an area generally north and east of Bailey, water tables fluctuated between 4 and 6 feet during soil formation causing soil layers that contain a reddish, iron-rich material called plinthite to form. Dothan soils, which have a yellow sandy clay loam subsoil, contain plinthite. Widely scattered areas in the Coastal Plain Province contain ironstone. Nankin soils, which have a clay subsoil that ranges from red to yellow, are associated with these ironstone areas.

Alluvial areas have not had the time required to develop a well defined soil. Each time high water occurs, new material is deposited, inhibiting soil development. Soils that occur in alluvial sediment generally contain layers of loamy, silty, and sandy material and gravel that have eroded from uplands. Examples of these soils are the Bibb and Wehadkee soils, which are gray, and Congaree soils, which are brown.

Throughout geologic history, streams have meandered back and forth leaving one flood plain and forming another. These old flood plains are now terraces. The soil formation on these terraces can occur enduring only rare and brief flooding. Examples of soils on terraces in Nash County are the Tomotley, Altavista, and Wickham soils. Tomotley soils have a gray sandy clay loam subsoil. Altavista soils have a mottled yellow and gray sandy clay loam subsoil, and Wickham soils have a red sandy clay loam subsoil.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(13)*. 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 19 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Ten 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 Entisol.

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 Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

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 Fluvaquents (*Fluv*, meaning flood plain deposits, plus *aquent*, the suborder of the Entisols that has an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Fluvaquents.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly 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 coarse-loamy, siliceous, acid, thermic Typic Fluvaquents.

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 substratum within a series. An example is the Bibb series, which is a member of the coarse-loamy, siliceous, acid, thermic Typic Fluvaquents.

Soil Series and Their Morphology

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

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described along with the state plane coordinates (X;Y). The detailed description of each soil horizon follows standards in the *Soil Survey Manual (12)*. Many of the technical terms used in the descriptions are defined in *Soil Taxonomy (13)*. 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

The Altavista series consists of moderately well drained, moderately permeable soils on stream terraces. These soils formed in fluvial sediment. Slopes range from 0 to 3 percent.

Typical pedon of Altavista sandy loam, 0 to 3 percent slopes, rarely flooded; 7 miles south of Nashville, 1 mile south of Taylor's Crossroads on State Road 1001, 2,000 feet west on Farm Pac Road, in a field 1,200 feet south of Farm Pac Road (2,295,000X; 773,000Y):

Ap—0 to 12 inches; grayish brown (2.5Y 5/2) sandy loam; weak medium granular structure; very friable; many fine roots; many small pores; few small quartz gravel; slightly acid; abrupt smooth boundary.

BE—12 to 14 inches; olive yellow (2.5Y 6/6) sandy loam; common medium distinct yellow (10YR 7/6) mottles; weak medium subangular blocky structure; friable; many fine roots; common small pores; few small quartz gravel; medium acid; abrupt smooth boundary.

Bt1—14 to 22 inches; yellow (10YR 7/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots; few small pores; few distinct clay skins on faces of peds; few small quartz gravel; very strongly acid; clear smooth boundary.

Bt2—22 to 32 inches; yellowish brown (10YR 5/8) clay loam; few fine distinct light gray (10YR 7/1) mottles, common medium distinct yellowish red (5YR 5/8) mottles, and many coarse prominent red (2.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; few fine roots; common small pores; common distinct clay skins on faces of peds; few medium gravel; very strongly acid; clear smooth boundary.

Bt3—32 to 44 inches; light yellowish brown (2.5Y 6/4) clay loam; few fine prominent red (2.5YR 4/8) mottles, common medium prominent yellowish red (5YR 4/8) mottles, common fine distinct light gray (10YR 7/1) mottles, and common medium prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; few fine roots in vertical cracks; common small pores; common distinct clay skins on faces of peds; few medium gravel; few fine flakes of mica; very strongly acid; clear smooth boundary.

C—44 to 60 inches; mottled brownish yellow (10YR 6/8), light gray (10YR 7/1), strong brown (7.5YR 5/8), and yellowish red (5YR 5/8) sandy clay loam; massive; friable; few quartz gravel; many flakes of mica; very strongly acid.

The Bt horizon ranges in thickness from 18 to 48 inches. Mica flakes are throughout the Bt and C horizons. Reaction is medium acid to very strongly acid in the Bt horizon and very strongly acid in the C horizon. Some quartz gravel is in the C horizon.

The Ap horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4. The texture is sandy loam.

The Bt horizon has hue of 2.5Y to 7.5YR, value of 5 to 7, and chroma of 4 to 8. Mottles have hue of 10YR, 7.5YR, 5YR, or 2.5YR, value of 4 to 7, and chroma of 1 to 8. The texture is sandy clay loam or clay loam.

The C horizon is mottled in hue of 10YR to 5YR, value of 5 to 7, and chroma of 1 to 8. The texture is sandy loam, loamy sand that has pockets of sand, or sandy clay loam.

Autryville Series

The Autryville series consists of well drained, moderately rapidly permeable to moderately permeable soils on Coastal Plain uplands. These soils formed in Coastal Plain sediment. Slopes range from 0 to 6 percent.

Typical pedon of Autryville loamy sand, 0 to 6 percent slopes; about 2.8 miles north of Bailey on State Roads 1945 and 1968; about 800 feet southeast of the intersection of State Roads 1945 and 1960 behind last row of tobacco barns in cultivated field (2,279,000X; 745,000Y):

Ap—0 to 8 inches; grayish brown (10YR 5/2) loamy sand; weak medium granular structure; very friable; few fine and medium roots; slightly acid; clear smooth boundary.

E—8 to 21 inches; brownish yellow (10YR 6/6) loamy sand; weak medium granular structure; very friable; few fine and medium roots; strongly acid; clear smooth boundary.

Bt1—21 to 38 inches; yellowish brown (10YR 5/8) sandy loam; weak medium subangular blocky structure; friable; many fine pores; very few faint clay skins on surface of sand grains; strongly acid; gradual wavy boundary.

Bt2—38 to 51 inches; yellowish brown (10YR 5/8) sandy loam; common coarse distinct light yellowish brown (10YR 6/4) mottles; weak fine subangular blocky structure; friable; few fine pores; few faint clay skins on surface of sand grains; few distinct clay bridges between sand grains; very strongly acid; gradual wavy boundary.

E'—51 to 61 inches; yellowish brown (10YR 5/6) loamy sand; common medium distinct light gray (10YR 7/2) mottles; weak medium granular structure; very friable; very strongly acid; abrupt smooth boundary.

B't—61 to 81 inches; yellowish brown (10YR 5/8) sandy clay loam; common coarse distinct gray (10YR 6/1) mottles; weak fine subangular blocky structure; friable; slightly sticky and slightly plastic; very strongly acid.

The Bt horizon ranges in thickness from 12 to 30 inches. The E' horizon begins from 33 to 51 inches below the surface. The B't horizon begins 40 to 61 inches below the surface. The reaction is strongly acid or very strongly acid throughout except where lime has been added.

The Ap horizon has hue of 10YR, value of 5, and chroma of 2 or 3. The texture is loamy sand.

The E horizon has hue of 10YR, value of 6, and chroma of 4 to 6. The texture is sand or loamy sand.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 6 to 8. The texture is sandy loam.

The E' horizon has hue of 10YR, value of 5 or 6, and chroma of 6 to 8. The texture is loamy sand.

The B't horizon has hue of 10YR, value of 5 or 6, and chroma of 6 to 8; or it is mottled in hue of 10YR to 5YR, value of 5 to 7, and chroma of 1 to 8. The texture is sandy clay loam.

Bibb Series

The Bibb series consists of poorly drained, moderately permeable soils on flood plains. These soils formed in recent alluvium. Slopes range from 0 to 2 percent.

Typical pedon of Bibb loam, frequently flooded; 1 mile south of Sandy Cross on North Carolina Highway 58, 1.7 miles southwest on State Road 1815, 100 feet in woods south of road (2,305,000X; 772,000Y):

O—1/2 to 0 inch; thin layer of fresh leaves, twigs, partly decomposed leaves and twigs.

A1—0 to 7 inches; dark grayish brown (10YR 4/2) loam; weak medium granular structure; friable; many fine and medium roots; many small and medium pores; very strongly acid; abrupt smooth boundary.

A2—7 to 11 inches; dark grayish brown (10YR 4/2) sandy loam; common medium distinct light gray (10YR 6/1) mottles; weak medium granular structure; friable; common fine roots; many small and medium pores; very strongly acid; abrupt smooth boundary.

Cg1—11 to 22 inches; dark gray (10YR 4/1) sandy loam; common medium distinct light gray (10YR 6/1) mottles and common fine prominent reddish brown (5YR 4/4) mottles; massive; very friable; few fine roots; strongly acid; abrupt smooth boundary.

Cg2—22 to 28 inches; light gray (10YR 6/1) sandy loam; massive; common medium distinct reddish brown (5YR 4/4) mottles and few medium faint gray (10YR 5/1) mottles; massive; very friable; few fine roots; strongly acid; clear smooth boundary.

Cg3—28 to 42 inches; light gray (10YR 6/1) sandy loam; massive; common medium prominent strong brown (7.5YR 5/6) mottles; very friable; few fine roots; many medium pores; few small rounded gravel; very strongly acid; gradual smooth boundary.

Cg4—42 to 60 inches; mottled light gray (10YR 6/1), greenish gray (5BG 5/1), white (N 8/0), and yellowish brown (10YR 5/6) silt loam; massive; few fine roots; common small and medium pores; few small rounded quartz gravel; very strongly acid.

The Bibb soils are very strongly acid or strongly acid throughout.

The A horizon has hue of 10YR, value of 2 to 5, and chroma of 1 or 2. Mottles have hue of 10YR, value of 5 or 6, and chroma of 1 to 6. Where the value is less than 4, the A horizon is less than 6 inches thick. The texture is loam or sandy loam.

The Cg horizon has hue of 5Y to 10YR, value of 3 to 6, and chroma of 1 or 2; it is neutral and has value of 3 to 6; or it is mottled in hue of 5YR to 5BG, value of 4 to 7, and chroma of 1 to 8. When mottled, it can also have neutral colors that have value of 3 to 6. The texture is sandy loam, silt loam, loamy sand, or sand.

Blanton Series

The Blanton series consists of moderately well drained, moderately permeable soils on Coastal Plain uplands. These soils formed in Coastal Plain sediment. Slopes are 0 to 6 percent.

Typical pedon of Blanton loamy sand, 0 to 6 percent slopes; 2 miles south of Sandy Cross, 0.3 mile west of the intersection of North Carolina Highway 58 and State Road 1934, in woods 500 feet north of State Road 1934 (2,311,000X; 774,000Y):

O1—5 to 3 inches; undecomposed forest litter.

O2—3 to 0 inches; decomposed forest litter and root mat.

A—0 to 9 inches; brown (10YR 4/3) loamy sand; weak medium granular structure; very friable; many fine and medium roots; many small pores; extremely acid; clear smooth boundary.

E1—9 to 39 inches; yellow (10YR 7/6) loamy sand; common coarse faint brown (10YR 5/3) mottles and few fine distinct reddish yellow (7.5YR 6/8) mottles; weak medium granular structure; very friable; many fine and medium roots; many small and medium pores; strongly acid; clear smooth boundary.

E2—39 to 49 inches; pale yellow (2.5Y 7/4) loamy sand; weak medium granular structure; very friable, slightly brittle in places; few fine roots; few small pores; strongly acid; clear smooth boundary.

Bt1—49 to 78 inches; strong brown (7.5YR 5/8) sandy clay loam; few fine distinct yellowish red (5YR 5/8) mottles and common fine distinct yellow (10YR 7/8) mottles; weak medium subangular blocky structure; friable; few fine roots; few small pores; common distinct clay skins on surface of sand grains; few distinct clay bridges between sand grains; very strongly acid; clear smooth boundary.

Bt2—78 to 85 inches; mottled reddish yellow (7.5YR 6/8), dark brown (7.5YR 4/2), light gray (10YR 7/2), yellow (10YR 7/8), and yellowish red (5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few small pores; common distinct clay skins on surface of sand grains; few distinct clay bridges between sand grains; very strongly acid.

The Bt horizon ranges in thickness from 17 to 25 inches and begins at a depth of 44 to 60 inches. The reaction of the Bt horizon is very strongly acid or extremely acid.

The A horizon has hue of 10YR, value of 4 to 6, and chroma of 2 or 3. The texture is loamy sand or sand.

The E horizon has hue of 10YR to 2.5Y, value of 6 or 7, and chroma of 3 to 6. It has mottles in hue of 10YR and 7.5YR, value of 5 or 6, and chroma of 3 to 8. The texture is loamy sand or sand.

The Bt horizon has hue of 10YR or 7.5YR, value of 5 and 6, and chroma of 4 to 8. It has mottles in hue of 10YR to 2.5YR, value of 4 to 8, and chroma of 2 to 8. The texture is sandy loam or sandy clay loam.

Bonneau Series

The Bonneau series consists of well drained, moderately permeable soils on Coastal Plain uplands. These soils formed in Coastal Plain sediment. Slopes range from 0 to 4 percent.

Typical pedon of Bonneau loamy sand, 0 to 4 percent slopes; 0.6 mile west of Sandy Cross on State Road 1717, in a field 400 feet north of State Road 1717 (2,309,000X; 783,000Y):

Ap—0 to 14 inches; brown (10YR 5/3) loamy sand; weak medium granular structure; very friable; many fine roots; many small pores; mildly alkaline; abrupt smooth boundary.

E—14 to 35 inches; very pale brown (10YR 7/3) loamy sand; common coarse faint yellow (10YR 7/6) mottles; massive; very friable; few fine roots; many small pores; mildly alkaline; abrupt smooth boundary.

Bt1—35 to 38 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; very friable; many small pores; few distinct clay skins on surface of sand grains; very strongly acid; abrupt smooth boundary.

Bt2—38 to 50 inches; yellowish brown (10YR 5/6) sandy clay loam; few fine faint very pale brown mottles and common fine distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; many small pores; common distinct clay skins on surface of sand grains; few faint clay bridges between sand grains; very strongly acid; clear smooth boundary.

Bt3—50 to 62 inches; yellowish brown (10YR 5/6) sandy clay loam; common fine distinct light gray (10YR 7/2) mottles and common fine distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; many small pores; common distinct clay skins on surface of sand grains; few faint clay bridges between sand grains; very strongly acid; abrupt smooth boundary.

Bt4—62 to 78 inches; mottled red (2.5YR 4/8), light gray (10YR 7/2), strong brown (7.5YR 5/8), and very pale brown (10YR 7/4) sandy clay loam; pockets of sandy loam; moderate medium angular blocky structure; friable; many small pores; common distinct clay skins on surface of sand grains; very strongly acid; clear smooth boundary.

BCg—78 to 93 inches; light gray (10YR 7/2) sandy clay loam; common coarse faint brownish yellow (10YR 6/6) mottles and common coarse prominent red (2.5YR 5/8) mottles; massive; friable; many small pores; very strongly acid.

The Bt horizon begins between 20 and 40 inches below the surface and ranges in thickness from 20 to 45 inches. Reaction is mildly alkaline to very strongly acid in the A and E horizons and strongly acid or very strongly acid in the Bt and BCg horizons.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. The texture is loamy sand.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 3 or 4. The texture is loamy sand.

The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 3 to 8; or it is mottled in hue of 10YR to 2.5YR, value of 4 to 7, and chroma of 2 to 8. The texture is generally sandy clay loam, but in some pedons the Bt1 horizon is sandy loam.

The BCg horizon has hue of 10YR, value of 5 to 7, and chroma of 2. It has mottles in hue of 10YR to 2.5YR, value of 4 to 7, and chroma of 4 to 8. The texture is sandy loam or sandy clay loam.

Congaree Series

The Congaree series consists of well drained, moderately permeable soils on flood plains. These soils formed in recent alluvium. Slopes are less than 2 percent.

Typical pedon of Congaree fine sandy loam, frequently flooded; 3 miles north of Aventon from the intersection of State Road 1506 and 1505, 0.8 mile northwest on State Road 1505, 1 mile north on a farm road, in woods 150 yards north of end of farm road and 100 feet south of Fishing Creek (2,312,000X; 889,000Y):

O—1 to 0 inch; decomposed and undecomposed forest litter.

A—0 to 5 inches; very dark grayish brown (10YR 3/2) fine sandy loam; moderate medium granular structure; very friable; many fine, medium, and coarse roots; common fine flakes of mica; medium acid; abrupt smooth boundary.

C1—5 to 8 inches; brown (10YR 4/3) fine sandy loam; massive; very friable; many fine and medium roots; many small pores; common fine flakes of mica; medium acid; clear smooth boundary.

C2—8 to 17 inches; brown (10YR 4/3) fine sandy loam; common fine distinct very pale brown (10YR 7/4) mottles; massive; friable; slightly brittle in places; many fine and medium roots; common small pores;

common fine flakes of mica; medium acid; clear smooth boundary.

C3—17 to 29 inches; light yellowish brown (10YR 6/4) fine sandy loam; few fine faint brown mottles; massive; friable; common fine roots; many small pores; few fine flakes of mica; strongly acid; clear wavy boundary.

C4—29 to 35 inches; yellowish brown (10YR 5/6) fine sandy loam; common fine faint very pale brown mottles and few fine distinct dark brown (10YR 3/3) mottles; massive; friable; few fine roots; many small pores; few fine flakes of mica; very strongly acid; clear wavy boundary.

C5—35 to 92 inches; mottled dark brown (10YR 3/3), yellowish brown (10YR 5/6), and light gray (10YR 7/2) fine sandy loam; massive; very friable; few fine roots in upper 5 inches; many small pores; common fine flakes of mica; very strongly acid.

The Congaree soil is very strongly acid to neutral throughout. Mica flakes are common throughout the profile.

The A horizon has hue of 10YR and 7.5YR, value of 3 or 4, and chroma of 2 through 4. It is 4 to 7 inches thick. The texture is fine sandy loam, sandy loam, or loamy sand.

The C horizon has hue of 10YR or 7.5YR, value of 3 to 6, and chroma of 3 to 6. It has mottles in hue of 10YR or 7.5YR, value of 3 to 7, and chroma of 2 to 8. It is fine sandy loam, sandy loam, or loam.

Dothan Series

The Dothan series consists of well drained, moderately permeable soils on Coastal Plain uplands. These soils formed in Coastal Plain sediment. Slopes range from 0 to 3 percent.

Typical pedon of Dothan loamy sand, 0 to 3 percent slopes; 1 mile east of Bailey, 700 feet east of the intersection of U.S. Highway 264A and State Road 1961, in a field 300 feet north of U.S. Highway 264A (2,267,000X; 738,000Y):

Ap—0 to 8 inches; brown (10YR 4/3) loamy sand; single grained; loose; many small roots; strongly acid; abrupt smooth boundary.

E1—8 to 12 inches; very pale brown (10YR 7/4) loamy sand; weak fine granular structure; very friable; many fine roots; many small pores; strongly acid; abrupt smooth boundary.

E2—12 to 16 inches; yellow (10YR 7/6) loamy sand; few medium distinct dark gray (10YR 4/1) mottles and few fine faint very pale brown mottles; weak fine granular structure; very friable; few fine roots; many small pores; strongly acid; clear smooth boundary.

Bt1—16 to 29 inches; brownish yellow (10YR 6/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; many small pores; few faint clay skins on surface of sand grains; very strongly acid; clear smooth boundary.

Bt2—29 to 48 inches; brownish yellow (10YR 6/6) sandy clay loam; few medium prominent red (10R 4/8) mottles; weak medium subangular blocky structure; friable; few fine roots; many small pores; 5 to 15 percent, by volume, plinthite nodules; few distinct discontinuous clay skins on faces of peds; few faint clay skins on surface of sand grains; very strongly acid; abrupt smooth boundary.

Btv1—48 to 56 inches; mottled red (10R 4/8), yellowish red (5YR 4/8), strong brown (7.5YR 5/8), and very pale brown (10YR 7/4) sandy clay loam; moderate medium subangular blocky structure; firm; 5 to 15 percent, by volume, plinthite nodules; few distinct discontinuous clay skins on faces of peds; very strongly acid; abrupt smooth boundary.

Btv2—56 to 84 inches; mottled yellow (10YR 7/6), red (2.5YR 5/8), weak red (10R 4/4), brownish yellow (10YR 6/6), red (10R 4/8), and white (10YR 8/2) sandy clay loam; weak medium subangular blocky structure; firm; few distinct discontinuous clay skins on faces of peds; 5 to 15 percent, by volume, plinthite nodules; very strongly acid.

The combined thickness of the Bt and Btv horizons ranges from 45 to more than 70 inches. The depth to the horizon containing more than 5 percent plinthite is 29 to 48 inches. Reaction is strongly acid to slightly acid in the A horizon, strongly acid in the E horizon, and strongly acid to very strongly acid in the Bt and Btv horizons.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The texture is loamy sand.

The E horizon has hue of 10YR, value of 3 to 7, and chroma of 3 to 8. The texture is loamy sand or sandy loam.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 6 to 8. The texture is sandy clay loam.

The Btv horizon has hue of 10YR, value of 5 or 6, and chroma of 6 to 8; or it is mottled in hue of 10YR to 10R, value of 4 to 8, and chroma of 1 to 8. The texture is sandy clay loam.

Faceville Series

The Faceville series consists of well drained, moderately permeable soils on Coastal Plain uplands. These soils formed in Coastal Plain sediment. Slope ranges from 1 to 6 percent.

Typical pedon of Faceville sandy loam, 1 to 6 percent slopes; 0.5 mile west of Samaria from the intersection of North Carolina Highway 97 and State Road 1151, 0.2 mile east on North Carolina Highway 97, in a field 200 feet south of the highway (2,240,000X; 768,000Y):

Ap—0 to 10 inches; yellowish brown (10YR 5/4) loamy sand; massive; very friable; common fine roots; few small quartz gravel; medium acid; abrupt smooth boundary.

Bt1—10 to 19 inches; yellowish red (5YR 5/6) sandy clay loam; common medium distinct light yellowish brown (10YR 6/4) mottles; weak fine subangular blocky structure; friable; common fine roots; few small pores; common faint clay skins on surface of sand grains; strongly acid; clear wavy boundary.

Bt2—19 to 28 inches; yellowish red (5YR 5/6) clay; weak medium subangular blocky structure; firm; common fine roots; few small pores; common distinct discontinuous clay skins on faces of peds; few small quartz gravel; very strongly acid; clear smooth boundary.

Bt3—28 to 52 inches; red (2.5YR 4/8) clay; few coarse prominent brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; firm; few small and medium pores; common distinct discontinuous clay skins on faces of peds; few small quartz gravel; very strongly acid; clear wavy boundary.

Bt4—52 to 70 inches; red (2.5YR 4/8) clay; few coarse prominent brownish yellow (10YR 6/6) mottles and common medium distinct yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; firm; common small pores; common distinct discontinuous clay skins on faces of peds; few small quartz gravel; very strongly acid; clear wavy boundary.

BC1—70 to 83 inches; red (2.5YR 5/8) sandy clay loam; common medium prominent brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; friable; few small quartz gravel; very strongly acid; clear wavy boundary.

BC2—83 to 93 inches; red (2.5YR 5/8) sandy clay loam; many coarse prominent brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; friable; few small gravel; very strongly acid.

The Bt horizon ranges in thickness from 46 to 66 inches. Reaction is strongly acid to slightly acid in the A horizon and very strongly acid or strongly acid in the Bt and BC horizons.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. The texture is loamy sand.

The Bt horizon has hue 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8. It has mottles in hue of 10YR to 2.5YR, value of 5 to 7, and chroma of 6 to 8. The texture is sandy clay loam, clay, or clay loam.

The BC horizon has hue of 2.5YR to 10R, value of 3 to 5, and chroma of 6 to 8. It has mottles in hue of 10YR or 7.5YR, value of 6 to 8, and chroma of 6 to 8. The texture is clay loam or sandy clay loam.

Georgeville Series

The Georgeville series consists of well drained, moderately permeable soils on upland ridges and side slopes of the Piedmont region. These soils formed in residuum weathered from fine grained rocks, such as argillites, felsic tuffs, and felsic crystalline tuffs. Slopes range from 2 to 25 percent.

Typical pedon of Georgeville loam, 2 to 6 percent slopes; 13 miles north of Nashville, 1.1 miles east of Franklin County line on State Road 1401, 20 feet into woods north of State Road 1401 (2,290,000X; 877,000Y):

O—3 to 0 inches; undecomposed and partly decomposed forest litter.

Ap—0 to 6 inches; red (2.5YR 4/6) loam; weak coarse granular structure; friable; common fine and medium roots; common small pores; few quartz gravel up to 3 inches in diameter; strongly acid; abrupt smooth boundary.

Bt1—6 to 11 inches; red (10R 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; many small pores; common distinct discontinuous clay skins on vertical faces of peds; strongly acid; clear wavy boundary.

Bt2—11 to 32 inches; red (10R 4/6) silty clay; strong medium subangular blocky structure; firm; common to few fine roots decreasing in number with depth; many small pores; common distinct clay skins on faces of peds; strongly acid; clear wavy boundary.

Bt3—32 to 38 inches; red (10R 4/6) silty clay loam; few fine prominent reddish yellow (7.5YR 6/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; few small pores; common distinct clay skins on faces of peds; strongly acid; clear wavy boundary.

BC—38 to 62 inches; red (10R 4/6) silt loam; common medium prominent reddish yellow (7.5YR 6/6) mottles and common fine faint weak red mottles; weak medium subangular blocky structure; friable; common distinct discontinuous clay skins in root channels; very strongly acid; clear wavy boundary.

C—62 to 78 inches; weak red (10R 5/3) silt loam; common medium prominent reddish yellow (7.5YR 6/6) mottles; massive; very friable; very strongly acid.

The clayey part of the Bt horizon ranges in thickness from 28 to 48 inches. Reaction is strongly acid or medium acid in the A horizon, strongly acid or very strongly acid in the Bt horizon, and very strongly acid in the BC and C horizons.

The A horizon has hue of 10YR to 2.5YR, value of 4 or 5, and chroma of 2 to 8. The texture is loam or gravelly loam.

The Bt horizon has hue of 5YR to 10R, value of 4 or 5, and chroma of 6 to 8. It has mottles in hue of 10YR to 5YR, value of 4 to 6, and chroma of 6 to 8. The texture is clay, silty clay, or clay loam.

The C horizon has hue of 10R to 10YR, value of 4 to 6, and chroma of 3 to 8, and commonly has mottles in shades of brown, yellow, gray, or red. In some pedons, it is mottled in shades of brown, yellow, gray, or red. The texture is silt loam, loam, or fine sandy loam.

Goldsboro Series

The Goldsboro series consists of moderately well drained, moderately permeable soils on Coastal Plain uplands. These soils formed in Coastal Plain sediment. Slopes range from 0 to 2 percent.

Typical pedon of Goldsboro fine sandy loam, 0 to 2 percent slopes; 1 mile west of Hickory from the intersection of State Road 1501 and 1500, 0.3 mile west on State Road 1500, in a field 200 feet south of the road (2,350,000X; 867,000Y):

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; very friable; many fine roots; many small pores; mildly alkaline; abrupt smooth boundary.

Bt1—10 to 19 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; weak medium subangular blocky structure; friable; common fine roots; many small pores; few faint clay skins on surface of sand grains; neutral; clear wavy boundary.

Bt2—19 to 28 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; few fine distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; common fine roots; many small pores; common distinct discontinuous clay skins on faces of peds; few fine clay skins and bridging on surface of sand grains and between sand grains; strongly acid; clear wavy boundary.

Bt3—28 to 35 inches; mottled light gray (10YR 7/2), pale yellow (2.5Y 7/4), yellowish brown (10YR 5/8), and red (2.5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; many small pores; common distinct discontinuous clay skins on faces of peds; few fine clay skins and bridging on surface of sand grains and between sand grains; very strongly acid; clear wavy boundary.

Bt4—35 to 62 inches; mottled light gray (10YR 7/2), brownish yellow (10YR 6/6), yellowish red (5YR 5/8), and red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; many small and few medium pores; common distinct discontinuous clay skins on faces of peds; very strongly acid; clear wavy boundary.

BC—62 to 93 inches; coarsely mottled yellow (10YR 7/8), light gray (10YR 7/2), red (10YR 4/8), and yellowish red (5YR 5/8) sandy clay loam; pockets of sandy loam; moderate medium and coarse subangular blocky structure; friable; many small and medium pores; very strongly acid.

The Bt horizon ranges in thickness from 40 to 52 inches. Reaction is mildly alkaline to slightly acid in the A horizon and strongly acid or very strongly acid in the Bt and BC horizons.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. The texture is fine sandy loam.

The upper part of the Bt horizon has hue of 10YR to 2.5Y, value of 5 or 6, and chroma of 4 to 8. The lower part is mottled in hue of 2.5Y to 2.5YR, value of 4 to 7, and chroma of 1 to 8. The texture is sandy clay loam.

Gritney Series

The Gritney series consists of moderately well drained, moderately slowly permeable to slowly permeable soils on Coastal Plain ridges and side slopes. These soils formed in Coastal Plain sediment. Slopes range from 2 to 10 percent.

Typical pedon of Gritney sandy loam, 2 to 6 percent slopes; 1 mile east of West Mount from the intersection of State Road 1717 and 1544 on State Road 1717, 500 feet on a farm road, in a field 50 feet south of old house (2,341,000X; 790,000Y):

Ap—0 to 7 inches; brown (10YR 5/3) sandy loam; weak medium granular structure; very friable; many fine roots; many small pores; moderately alkaline; abrupt smooth boundary.

Bt1—7 to 14 inches; yellowish brown (10YR 5/8) sandy clay loam; few fine distinct yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; friable; common fine roots; many small pores; common distinct clay skins on faces of peds; very strongly acid; clear smooth boundary.

Bt2—14 to 21 inches; yellowish brown (10YR 5/6) clay; few fine prominent light gray (10YR 7/2) mottles, few fine distinct strong brown (7.5YR 5/6) mottles, and common fine prominent red (2.5YR 4/8) mottles; moderate medium angular blocky structure; firm; few fine roots; common distinct discontinuous clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt3—21 to 30 inches; mottled yellowish brown (10YR 5/8), strong brown (7.5YR 5/6), red (2.5YR 4/8), and light gray (10YR 7/1) clay; moderate medium angular blocky structure; firm; few fine roots; common distinct clay skins on faces of peds; very strongly acid; clear smooth boundary.

Bt4—30 to 53 inches; coarsely mottled yellowish brown (10YR 5/8), strong brown (7.5YR 5/6), red (2.5YR 4/8), and light gray (10YR 7/1) clay, moderate medium angular blocky structure; very firm; common distinct clay skins on faces of peds; very strongly acid; abrupt smooth boundary.

BC—53 to 60 inches; coarsely mottled light gray (10YR 7/1), yellow (10YR 7/6), reddish yellow (7.5YR 7/8), and red (2.5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few flakes of mica; very strongly acid; abrupt smooth boundary.

C—60 to 80 inches; mottled reddish yellow (7.5YR 6/8) and white (10YR 8/1) sandy loam; massive; very friable; few flakes of mica; very strongly acid.

The Bt horizon ranges in thickness from 20 to 46 inches. Reaction is moderately alkaline to very strongly acid in the A horizon, very strongly acid or strongly acid in the Bt horizon, and very strongly acid in the C horizon.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. The texture is sandy loam.

The upper part of the Bt horizon has hue of 10YR, 7.5YR, or 5YR, value of 5 or 6, and chroma of 6 to 8. The lower part is mottled in hue of 10YR to 2.5YR, value of 4 to 7, and chroma of 1 to 8. The texture throughout the Bt horizon is clay, sandy clay, clay loam, or sandy clay loam.

The C horizon is mottled in hue of 10YR to 2.5YR, value of 4 to 8, and chroma of 1 to 8. The texture is sandy loam or loamy sand. Mica flakes are common.

Helena Series

The Helena series consists of moderately well drained, slowly permeable soils in depressions, on toe slopes, and in draws on uplands of the Piedmont. These soils formed in residuum weathered from felsic intrusive rocks. Slopes range from 2 to 6 percent.

Typical pedon of Helena coarse sandy loam, 2 to 6 percent slopes; 1.2 miles southwest of Matthews Crossroads on State Road 1310, 0.2 mile southeast on a farm path to cutover woods 20 feet north of the path (2,280,000X; 837,000Y):

O—1 to 0 inch; undecomposed and decomposed leaves, needles, and twigs.

A—0 to 3 inches; grayish brown (10YR 5/2) coarse sandy loam; weak medium granular structure; very friable; many fine and medium roots; many small pores; very strongly acid; clear smooth boundary.

E—3 to 18 inches; light yellowish brown (2.5Y 6/4) coarse sandy loam; weak medium granular structure; very friable; many fine and medium roots; many small pores; strongly acid; abrupt wavy boundary.

Bt1—18 to 21 inches; yellowish brown (10YR 5/8) sandy clay loam; few fine prominent yellowish red (5YR 4/8) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; many small pores; few distinct discontinuous clay skins on faces of peds; strongly acid; abrupt broken boundary.

Bt2—21 to 31 inches; yellowish brown (10YR 5/8) clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots; common small pores; common distinct discontinuous clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt3—31 to 37 inches; yellowish brown (10YR 5/6) clay; few fine distinct strong brown (7.5YR 5/6) mottles, common medium prominent red (2.5YR 4/8) mottles, and few medium prominent light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm; few fine and medium roots; common distinct clay skins on the faces of peds; few fine flakes of mica; very strongly acid; clear wavy boundary.

Btg—37 to 48 inches; light gray (10YR 7/2) clay; common coarse prominent yellow (10YR 7/8) and red (10R 4/8) mottles; strong medium subangular blocky structure; very firm; few fine and medium roots; common prominent yellowish brown (10YR 5/4) clay skins on faces of peds; few fine flakes of mica; very strongly acid; abrupt wavy boundary.

C—48 to 68 inches; coarsely mottled light gray (10YR 7/2), brownish yellow (10YR 6/6), dark bluish gray (5B 4/1), and red (10R 4/8) sandy loam saprolite; massive; firm in places, friable when broken; few distinct clay skins in vertical cracks; common flakes of mica; very strongly acid.

The Bt horizon ranges in thickness from 17 to 36 inches. Saprolite begins 30 to 48 inches below the surface. Mica flakes are common below the A horizon. Reaction is neutral to very strongly acid in the A horizon, strongly acid or very strongly acid in the Bt horizon, and very strongly acid in the C horizon.

The A horizon has hue of 10YR, value of 5 or 6, and chroma of 2 or 3. The texture is coarse sandy loam.

The E horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 2 to 4. The texture is coarse sandy loam.

The upper part of the Bt horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 8. The lower part has color value similar to the upper part and chroma of 2 to 8. The Bt horizon has mottles in hue of 2.5Y to 2.5YR, value of 4 to 7, and chroma of 1 to 8. The texture is sandy clay loam, clay loam, sandy loam, sandy clay, or clay.

The C horizon is mottled in hue of 2.5Y to 10R and 5B, value of 4 to 7, and chroma of 1 to 8. The texture is sandy loam or coarse sandy loam.

Meggett Series

The Meggett series consists of poorly drained, slowly permeable soils on flood plains. These soils formed in Coastal Plain sediment. Slopes range from 0 to 2 percent.

Typical pedon of Meggett loam, frequently flooded; 1.5 miles north of Battleboro on U.S. Highway 301, 100 feet in woods west of highway (2,370,000X; 848,000Y):

O—2 to 0 inches; undecomposed and partly decomposed forest litter.

A—0 to 6 inches; dark gray (10YR 4/1) loam; weak medium granular structure; very friable; many medium roots; very strongly acid; abrupt smooth boundary.

Btg1—6 to 12 inches; light brownish gray (10YR 6/2) clay loam; common medium distinct strong brown (7.5YR 5/6) mottles; strong medium angular blocky structure; friable; few fine roots; common small pores; many prominent clay skins on faces of peds; very strongly acid; clear smooth boundary.

Btg2—12 to 27 inches; light brownish gray (10YR 6/2) clay loam; common medium prominent yellowish brown (10YR 5/6) mottles and few fine prominent red (2.5YR 4/8) mottles; strong medium angular blocky structure; firm; few fine roots; few small pores; many distinct clay skins on faces of peds; very strongly acid; clear wavy boundary.

Btg3—27 to 44 inches; grayish brown (10YR 5/2) clay; common medium distinct yellowish brown (10YR 5/6) mottles and common medium prominent red (2.5YR 5/8) mottles; strong medium angular blocky structure; very firm; few fine roots; few small pores; many distinct clay skins on faces of peds; few small calcium carbonate concretions; moderately alkaline; clear wavy boundary.

Btg4—44 to 65 inches; light brownish gray (10YR 6/2) clay loam; common medium prominent yellowish red (5YR 5/6) mottles and few fine prominent dark reddish brown (5YR 3/2) mottles; moderate medium subangular blocky structure; firm; few fine roots; few small pores; common distinct discontinuous clay skins on vertical faces of peds; few fine flakes of mica; moderately alkaline.

The Btg horizon ranges in thickness from 35 to 59 inches. Reaction is very strongly acid to slightly acid in the A horizon and upper part of the Btg horizon and moderately alkaline in the lower part of the Btg horizon. Calcium concretions are in the lower part of the Btg horizon.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. In some pedons, it has mottles in hue of 10YR or 7.5YR, value of 4 to 7, and chroma of 2 to 8. The texture is loam.

The Btg horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It has mottles in hue of 10YR to 2.5YR and 5BG, value of 4 to 7, and chroma of 1 to 8. The texture is clay loam or clay.

Nankin Series

The Nankin series consists of well drained, moderately slowly permeable soils on Coastal Plain ridges and side slopes. These soils formed in marine sediment. Slopes range from 2 to 10 percent.

Typical pedon of Nankin sandy loam, 2 to 10 percent slopes; 8 miles north of Nashville, 0.6 mile east of Taylor's Store on State Road 1418, 0.3 mile north of State Road 1418 on a farm road, in a field 25 feet west of the farm road (2,303,000X; 856,000Y):

Ap—0 to 4 inches; dark brown (7.5YR 4/4) sandy loam; weak medium granular structure; very friable; many fine roots; common gravel-size ironstone fragments; medium acid; abrupt smooth boundary.

Bt1—4 to 12 inches; yellowish red (5YR 5/8) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many small pores; common distinct clay skins in vertical cracks; few ironstone fragments; very strongly acid; clear wavy boundary.

Bt2—12 to 27 inches; yellowish red (5YR 4/8) clay loam; few fine prominent yellow (10YR 7/8) mottles; weak medium subangular blocky structure; firm; few fine roots; common small and medium pores; common distinct skins on faces of peds; few faint clay skins on surface of sand grains; common ironstone fragments; very strongly acid; clear wavy boundary.

BC—27 to 45 inches; yellowish red (5YR 4/8) sandy clay loam; common medium distinct brownish yellow (10YR 6/8) mottles and common coarse distinct red (2.5YR 4/8) mottles; weak fine subangular blocky structure; firm and slightly brittle; few pores; very strongly acid; clear wavy boundary.

C—45 to 60 inches; mottled yellowish red (5YR 4/8), brownish yellow (10YR 6/8), red (2.5YR 4/8), and very pale brown (10YR 7/4) sandy loam; massive; firm and brittle in place, friable when broken; few pores; very strongly acid.

The Bt horizon ranges in thickness from 20 to 34 inches. The A and B horizons contain few to many ironstone concretions. Reaction is medium acid or strongly acid in the A horizon and strongly acid or very strongly acid in the B and C horizons.

The A horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 to 4. The texture is sandy loam.

The Bt horizon has hue of 10YR to 2.5YR, value of 4 to 6, and chroma of 6 to 8. It has mottles in hue of 10YR to 5YR, value of 4 to 7, and chroma of 4 to 8. The texture is clay loam or sandy clay.

The C horizon is mottled in hue of 10YR to 2.5YR, value of 4 to 7, and chroma of 1 to 8. The texture is sandy loam and sandy clay loam.

Nason Series

The Nason series consists of well drained, moderately permeable soils on ridges and side slopes of uplands. These soils formed in residuum weathered from fine grained rocks, such as argillites, felsic tuffs, and felsic crystalline tuffs. Slopes range from 2 to 10 percent.

Typical pedon of Nason loam, 2 to 6 percent slopes; 9 miles north of Nashville, 0.4 mile south of Taylor's Store on State Road 1004, 0.9 mile southwest on State Road 1413, 0.3 mile southwest on a path, in cutover and burned woods 150 feet southeast of path (2,296,000X; 846,000Y):

O—1/4 to 0 inch; disintegrated roots; twigs and leaves.

A—0 to 5 inches; brown (10YR 5/3) loam; weak fine granular structure; very friable; many fine roots; many small pores; medium acid; abrupt wavy boundary.

Bt1—5 to 8 inches; strong brown (7.5YR 5/8) clay loam; few fine distinct red (2.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; common fine and medium roots; many small and medium pores; few distinct clay skins on faces of peds; strongly acid; abrupt wavy boundary.

Bt2—8 to 13 inches; reddish yellow (7.5YR 6/8) silty clay loam; strong medium subangular blocky structure; friable; common medium roots; common medium pores; common distinct clay skins on faces of peds; very strongly acid; clear wavy boundary.

Bt3—13 to 21 inches; yellowish red (5YR 5/8) silty clay; strong medium subangular blocky structure; friable; few fine and medium roots; few small pores; common distinct clay skins on faces of peds; very strongly acid; clear wavy boundary.

Bt4—21 to 27 inches; yellowish red (5YR 5/8) silty clay; common fine distinct red (2.5YR 5/6) mottles and few fine distinct reddish yellow (7.5YR 6/8) mottles; strong medium subangular blocky structure; friable; few fine roots; few small pores; common distinct clay skins on faces of peds; extremely acid; abrupt wavy boundary.

BC—27 to 36 inches; mottled yellowish red (5YR 5/8) and reddish yellow (7.5YR 6/8) silty clay loam; weak coarse subangular blocky structure; friable; few fine roots; few distinct discontinuous clay skins in vertical cracks; few small fragments of disintegrated argillite; extremely acid; gradual wavy boundary.

C—36 to 60 inches; yellowish red (5YR 5/8), reddish yellow (7.5YR 6/8), and strong brown (7.5YR 5/6) saprolite that crushes to silt loam; massive; many small fragments of disintegrated argillite; extremely acid.

The Bt horizon ranges in thickness from 19 to 31 inches. The depth to saprolite is 28 to 50 inches below the surface. Reaction is medium acid to very strongly acid in the A horizon, strongly acid to extremely acid in the Bt horizon, and very strongly acid or extremely acid in the C horizon.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The texture is loam or sandy loam.

The Bt horizon has hue of 10YR to 5YR, value of 5 or 6, and chroma of 6 to 8. It has mottles in hue of 10YR to 2.5YR, value of 5 to 7, and chroma of 4 to 8. The texture is clay loam, silty clay, or silty clay loam.

The C horizon is saprolite that crushes to silt loam. It has hue of 10YR to 2.5YR, value of 3 to 8, and chroma of 1 to 8.

Norfolk Series

The Norfolk series consists of well drained, moderately permeable soils on uplands of the Coastal Plain. These soils formed in Coastal Plain sediment. Slopes range from 0 to 8 percent.

Typical pedon of Norfolk loamy sand, 0 to 2 percent slopes; 6.5 miles south of Nashville from the intersection of State Road 1923 and 1925, 1,500 feet west on State Road 1923, in a field 400 feet north of State Road 1923 (2,290,000X; 783,000Y):

Ap—0 to 10 inches; grayish brown (10YR 5/2) loamy sand; weak medium granular structure; very friable; many small roots; many small pores; moderately alkaline; clear wavy boundary.

E—10 to 19 inches; very pale brown (10YR 7/3) sandy loam; common fine faint yellow mottles; weak medium granular structure; very friable; few small roots; many small pores; mildly alkaline; clear wavy boundary.

Bt1—19 to 24 inches; brownish yellow (10YR 6/6) sandy clay loam; weak medium subangular blocky structure; friable; few small roots; many small pores; few distinct discontinuous clay skins on faces of peds; strongly acid; clear smooth boundary.

Bt2—24 to 58 inches; brownish yellow (10YR 6/6) sandy clay loam; many medium prominent yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; friable; many small pores; few distinct discontinuous clay skins on faces of peds; few faint clay skins on surfaces of sand grains; very strongly acid; clear smooth boundary.

Bt3—58 to 64 inches; brownish yellow (10YR 6/6) sandy clay loam; few fine distinct very pale brown (10YR 7/3) mottles; weak medium subangular blocky structure; friable; many small pores; few distinct discontinuous clay skins on faces of peds; few faint clay skins on surfaces of sand grains; very strongly acid; clear smooth boundary.

BC—64 to 82 inches; mottled brownish yellow (10YR 6/6), yellow (10YR 7/6), red (2.5YR 5/8), and gray (10YR 7/2) sandy loam; weak medium subangular blocky structure; many small pores; very strongly acid.

The Bt horizon ranges in thickness from 42 to 60 inches. Reaction is moderately alkaline to strongly acid in the Ap and E horizons and very strongly acid or strongly acid in the Bt and BC horizons.

The Ap horizon has hue of 10YR, value of 4 to 6, and chroma of 2 to 4. The texture is loamy sand or sandy loam.

The E horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 3 to 6. The texture is loamy sand or sandy loam.

The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 6 to 8. It has mottles in hue of 10YR to 2.5YR, value of 4 to 7, and chroma of 3 to 8. The texture is sandy clay loam.

Rains Series

The Rains series consists of poorly drained, moderately permeable soils on Coastal Plain uplands. These soils formed in Coastal Plain sediment. Slopes range from 0 to 2 percent.

Typical pedon of Rains fine sandy loam; 2.4 miles north of Dortches on State Road 1527, 100 feet in woods west of State Road 1527 (2,340,000X; 838,000Y):

O—2 to 0 inches; undecomposed and partly decomposed leaves and twigs.

A—0 to 6 inches; very dark gray (10YR 3/1) fine sandy loam; weak medium granular structure; very friable; many fine and medium roots; strongly acid; clear wavy boundary.

E—6 to 11 inches; light brownish gray (10YR 6/2) sandy loam; weak medium granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

BE—11 to 14 inches; light brownish gray (10YR 6/2) sandy loam; common medium distinct brownish yellow (10YR 6/6) mottles; weak coarse subangular blocky structure; very friable; common fine roots; many medium pores; few faint clay bridges between sand grains; strongly acid; clear irregular boundary.

Btg1—14 to 19 inches; gray (10YR 6/1) sandy clay loam; common medium distinct brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; friable; common fine roots; many medium pores; few distinct discontinuous clay skins on faces of peds; very strongly acid; clear wavy boundary.

Btg2—19 to 34 inches; gray (10YR 6/1) sandy clay loam; common medium distinct brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; friable; few fine roots; common medium pores; few distinct discontinuous clay skins on faces of peds; very strongly acid; gradual wavy boundary.

Btg3—34 to 48 inches; gray (10YR 6/1) sandy clay loam; common coarse distinct brownish yellow (10YR 6/8) mottles and few medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; many medium and large pores; few distinct clay skins on faces of peds; few faint clay skins on surface of sand grains; very strongly acid; gradual wavy boundary.

Btg4—48 to 85 inches; gray (10YR 5/1) sandy clay; common medium distinct brownish yellow (10YR 6/8) mottles, few medium distinct yellowish brown (10YR 5/6) mottles, and few fine prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; few fine roots; few small pores; common distinct discontinuous clay skins on faces of peds; few faint clay skins on surface of sand grains; very strongly acid.

The Bt horizon is more than 50 inches thick. Reaction is medium acid to very strongly acid in the A horizon and very strongly acid or strongly acid throughout the rest of the profile.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. The texture is fine sandy loam or sandy loam.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 4. It has mottles in hue of 10YR, value of 4 to 7, and chroma of 4 to 8. The texture is sandy loam, fine sandy loam, or loamy sand.

The Btg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It has mottles in hue of 10YR to 2.5YR, value of 4 to 6, and chroma of 1 to 8. The texture is sandy clay loam or sandy clay.

Tomotley Series

The Tomotley series consists of poorly drained, moderately permeable soils on stream terraces. These soils formed in fluvial sediment. Slopes range from 0 to 2 percent.

Typical pedon of Tomotley fine sandy loam, rarely flooded; 4 miles north of Middlesex, 0.6 mile north of North Carolina Highway 97 on State Road 1150, in woods 250 feet north of Turkey Creek and 150 feet west of State Road 1150 (2,231,000X; 766,000Y):

O—2 to 0 inches; undecomposed forest litter.

A—0 to 5 inches; dark grayish brown (10YR 4/2) fine sandy loam; moderate medium granular structure; very friable; many fine and medium roots; many small and medium pores; strongly acid; abrupt smooth boundary.

E—5 to 7 inches; light gray (10YR 6/1) fine sandy loam; weak medium granular structure; very friable; common fine and medium roots; common small pores; strongly acid; abrupt wavy boundary.

Btg1—7 to 24 inches; light gray (10YR 7/1) sandy clay loam; many coarse faint gray (10YR 6/1) mottles and many coarse distinct brownish yellow (10YR

6/6) mottles; few pockets of sandy clay; moderate medium subangular blocky structure; friable; few fine roots; common small pores; few distinct clay skins on vertical faces of peds; very strongly acid; clear smooth boundary.

Btg2—24 to 37 inches; gray (10YR 6/1) sandy clay loam; common medium distinct brownish yellow (10YR 6/6) mottles; few pockets of sandy clay; moderate medium subangular blocky structure; friable; few fine roots; few small pores; few distinct clay skins on vertical faces of peds; few small flakes of mica; very strongly acid; clear wavy boundary.

Btg3—37 to 53 inches; gray (10YR 6/1) sandy clay loam; few fine faint light gray mottles, common medium distinct light olive brown (2.5Y 5/4) mottles, and common medium distinct brownish yellow (10YR 6/6) mottles; few pockets of sandy clay; weak medium subangular blocky structure; friable; few fine roots; few small pores; few distinct clay skins on vertical faces of peds; few small flakes of mica; very strongly acid; clear irregular boundary.

BCg—53 to 70 inches; gray (10YR 6/1) sandy loam; few fine faint white mottles; massive; friable; few fine roots; few small pores; few distinct discontinuous clay skins in vertical cracks; few fine flakes of mica; extremely acid; abrupt smooth boundary.

Cg—70 to 80 inches; gray (10YR 6/1) sand; single grained; loose; extremely acid.

The Btg horizon ranges in thickness from 24 to 46 inches. Reaction is very strongly acid or strongly acid in the A and E horizons and strongly acid to extremely acid in the Btg and Cg horizons. Mica flakes are in the lower part of the Btg horizon and in the Cg horizon.

The A horizon has hue of 10YR or 2.5Y, value of 4, and chroma of 1 or 2. The texture is fine sandy loam.

The E horizon has hue of 10YR, value of 6 or 7, and chroma of 1 to 4. The texture is fine sandy loam, sandy loam, or loamy sand.

The Btg horizon has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. It has mottles in hue of 10YR and 2.5Y, value of 5 to 7, and chroma of 1 to 6. The texture is commonly sandy clay loam but ranges to clay loam or fine sandy loam.

The Cg horizon has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. Some pedons have mottles in hue of 10YR and 2.5Y, value of 5 to 7, and chroma of 1 to 8. The texture of the Cg horizon is sand, loamy sand, or sandy loam.

Wedowee Series

The Wedowee series consists of well drained, moderately permeable soils on ridges and side slopes of Piedmont uplands. These soils formed in residuum weathered from felsic intrusive rock. Slopes range from 2 to 10 percent.

Typical pedon of Wedowee coarse sandy loam, 2 to 6 percent slope; 0.2 mile southeast of Lancaster's Crossroad on State Road 1321, 0.4 mile south on a farm road to tobacco barn, in a field 100 feet southeast of the barn (2,270,000X; 840,000Y):

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

E—10 to 13 inches; brownish yellow (10YR 6/6) coarse sandy loam; moderate medium granular structure; friable; few fine roots; many small pores; strongly acid; abrupt smooth boundary.

Bt1—13 to 25 inches; reddish yellow (7.5YR 6/8) clay; few fine prominent red (2.5YR 4/8) mottles and common coarse distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; firm; few fine roots; common small pores; common distinct clay skins on faces of peds; common fine flakes of mica; very strongly acid; clear wavy boundary.

Bt2—25 to 34 inches; yellowish red (7.5YR 6/8) clay; common fine prominent red (2.5YR 4/8) mottles and few fine distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; firm; few small roots; common small pores; many prominent clay skins on faces of peds; common fine flakes of mica; very strongly acid; clear smooth boundary.

BC—34 to 39 inches; mottled red (2.5YR 4/6), strong brown (7.5YR 5/6), yellow (10YR 7/8), and white (10YR 8/2) clay loam; weak medium subangular blocky structure; friable; few distinct discontinuous clay skins on vertical cracks; common fine flakes of mica; very strongly acid; clear smooth boundary.

C—39 to 63 inches; mottled red (2.5YR 4/8), white (10YR 8/2), yellow (10YR 7/8), and brownish yellow (10YR 6/8) sandy clay loam; massive; friable; many fine flakes of mica; very strongly acid.

The Bt horizon ranges in thickness from 11 to 24 inches. Reaction is very strongly acid or strongly acid throughout except where lime has been added. Common flakes of mica are throughout the Bt, BC, and C horizons.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. The texture is coarse sandy loam.

The E horizon has hue of 10YR, value of 6 or 7, and chroma of 4 to 8. The texture is coarse sandy loam or sandy loam.

The Bt horizon has hue of 10YR to 5YR, value of 5 or 6, and chroma of 6 to 8. It has mottles in hue of 10YR to 2.5YR, value of 4 to 7, and chroma of 3 to 8. The texture is clay, sandy clay, or clay loam.

The C horizon is mottled in hue of 10YR to 2.5YR, value of 4 to 8, and chroma of 2 to 8. The texture is coarse sandy loam, sandy loam, or sandy clay loam.

Wehadkee Series

The Wehadkee series consists of poorly drained, moderately permeable soils on flood plains. These soils formed in loamy sediment washed from upland soils. Slopes range from 0 to 2 percent.

Typical pedon of Wehadkee loam, frequently flooded; 2 miles north of Nashville, 1 mile east of State Road 1435 on State Road 1433, in woods 325 feet west of State Road 1433, and 300 feet north of Pig Basket Creek (2,312,000X; 820,000Y):

O—1 to 0 inch; undecomposed forest litter.

A—0 to 5 inches; grayish brown (2.5Y 5/2) loam; few fine prominent strong brown (7.5YR 5/6) mottles; weak medium granular structure; very friable; many fine and medium roots; many small and medium pores; medium acid; abrupt smooth boundary.

Bwg1—5 to 11 inches; gray (10YR 6/1) sandy clay loam; few fine faint yellowish brown mottles, common medium distinct gray (N 6/0) mottles, and common fine distinct very dark grayish brown (10YR 3/2) mottles; weak coarse subangular blocky structure; friable; common fine and medium roots; common small pores; few small black brittle concretions; medium acid; clear wavy boundary.

Bwg2—11 to 37 inches; light gray (10YR 7/1) sandy clay loam; few medium distinct gray (N 6/0) mottles, few fine distinct very dark grayish brown (10YR 3/2) mottles, and common fine prominent yellowish brown (10YR 5/8) mottles; weak coarse subangular blocky structure; friable; common fine and medium roots; common small and medium pores; medium acid; abrupt smooth boundary.

Cg—37 to 62 inches; mottled white (5Y 8/1), yellowish brown (10YR 5/8), and light gray (10YR 7/2) loamy sand; massive; very friable; few quartz gravel; neutral.

The Bw horizon ranges in thickness from 25 to 43 inches. Reaction is medium acid to neutral throughout the soil.

The A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2. The texture is loam.

The Bwg horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. It has mottles in hue of 7.5YR to 2.5Y, value of 3 to 6, and chroma of 1 to 8, and in neutral colors that have value of 3 to 6. The texture is sandy clay loam or clay loam.

The Cg horizon is mottled either as coarse pockets or thin layers in hue of 5Y to 10YR, value of 5 to 8, and chroma of 1 to 8. The texture is loamy sand, sandy loam, sand, or gravel.

Wickham Series

The Wickham series consists of well drained, moderately permeable soils on stream terraces. These soils formed in fluvial sediment. Slopes range from 0 to 3 percent.

Typical pedon of Wickham fine sandy loam, 0 to 3 percent slopes, rarely flooded; 10 miles north of Nashville, 0.5 mile west of Taylor's Store on State Road 1310, 1.4 miles north on State Road 1407, 0.4 mile east on a path, in a field at north edge of path (2,296,000X; 862,000Y):

Ap—0 to 9 inches; brown (10YR 4/3) fine sandy loam; weak coarse granular structure; very friable; many fine roots; common fine flakes of mica; slightly acid; abrupt smooth boundary.

BA—9 to 14 inches; yellowish brown (10YR 5/6) sandy loam; common fine faint dark yellowish brown mottles and common fine distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; common small pores; few faint clay bridges between sand grains and in pores; common fine flakes of mica; very strongly acid; clear smooth boundary.

Bt1—14 to 21 inches; yellowish red (5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; many small pores; few distinct discontinuous clay skins on faces of peds; few faint clay bridges between sand grains; common fine flakes of mica; very strongly acid; clear smooth boundary.

Bt2—21 to 30 inches; yellowish red (5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; common small pores; common prominent clay skins on faces of peds; few faint clay skins on surface of sand grains; many fine flakes of mica; very strongly acid; gradual smooth boundary.

Bt3—30 to 41 inches; yellowish red (5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few small pores; many small flakes of mica; common distinct clay skins on faces of peds; very strongly acid; gradual smooth boundary.

C—41 to 67 inches; strong brown (7.5YR 5/6) sandy loam; few fine distinct brownish yellow (10YR 6/6) mottles; massive; very friable; few fine roots; many medium flakes of mica; very strongly acid.

The Bt horizon ranges in thickness from 16 to 38 inches. Reaction is medium acid or slightly acid in the A horizon, very strongly acid or strongly acid in the B horizon, and very strongly acid in the C horizon. Many flakes of mica are throughout the profile.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. The texture is fine sandy loam.

The Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 4 to 8. The texture is sandy clay loam.

The C horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 3 to 6. The texture is sandy loam, loamy sand, or sand.

Worsham Series

The Worsham series consists of poorly drained, very slowly permeable soils on uplands. These soils are in depressions at the base of slopes and at the head of drainageways that receive seepage water from higher-lying uplands. They formed in local alluvium or in residuum from weathered felsic rocks. Slopes range from 0 to 2 percent.

Typical pedon of Worsham loam, 0 to 2 percent slopes; 4 miles west of Spring Hope, 0.2 mile south of the intersection of Alternate U.S. Highway 64 and State Road 1149, in woods 125 feet west of State Road 1149 (2,238,000X; 788,000Y):

O1—4 to 3 inches; undecomposed forest litter.

O2—3 to 0 inches; decomposed organic matter and root mat.

A1—0 to 5 inches; dark grayish brown (10YR 4/2) loam; many medium distinct gray (10YR 6/1) mottles and many fine distinct yellowish brown (10YR 5/8) mottles; strong medium granular structure; very friable; many fine and medium roots; many small and medium pores; medium acid; abrupt smooth boundary.

A2—5 to 7 inches; gray (10YR 6/1) loam; few fine distinct yellowish brown (10YR 5/8) mottles; strong medium granular structure; very friable; many fine roots; many small pores; medium acid; abrupt smooth boundary.

Btg1—7 to 15 inches; gray (10YR 6/1) clay loam; few fine distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; many fine and medium roots; many small and medium pores; few distinct clay skins on faces of peds; very strongly acid; clear wavy boundary.

Btg2—15 to 38 inches; gray (10YR 6/1) clay; few fine distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; common fine roots; many small, medium, and large pores; common distinct clay skins on faces of peds; very strongly acid; clear wavy boundary.

Btg3—38 to 50 inches; gray (10YR 6/1) clay; few fine distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; common fine roots; many small, medium, and large pores; common distinct clay skins on faces of peds; few small flakes of mica; many large sand grains; few small quartz gravel; very strongly acid; clear wavy boundary.

Btg4—50 to 67 inches; gray (10YR 6/1) clay loam; common fine distinct yellowish brown (10YR 5/8) mottles and common medium distinct white (5Y 8/2) mottles; moderate medium subangular blocky structure; friable; few small, medium, and large pores; common distinct discontinuous clay skins on faces of peds; few small flakes of mica; few to common gravel that commonly increase in amount with depth; very strongly acid.

The Btg horizon ranges in thickness from 29 to more than 60 inches. Reaction is very strongly acid to slightly acid in the A horizon and strongly acid or very strongly acid in the Btg horizon. Few flakes of mica are in the lower part of the Btg horizon and in the BCg horizon.

The A horizon has hue of 2.5Y to 10YR, value of 4 to 6, and chroma of 1 or 2. It has mottles in hue of 10YR and 7.5YR, value of 5 or 6, and chroma of 1 to 8. The texture is loam.

The Btg horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It has mottles in hue of 10YR to 2.5YR, value of 4 to 6, and chroma of 1 to 8. The texture is dominantly clay or clay loam but includes sandy clay loam or sandy clay. In a few pedons, the lower part of the Btg horizon is sandy loam.

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Glossary

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

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

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

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

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—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

	Inches/inch (in tables)
Very low	0.00 to 0.05
Low	0.05 to 0.10
Moderate	0.10 to 0.15
High	0.15 to 0.20
Very high	more than 0.20

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

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Broad-base terrace. A ridge-type terrace built to control erosion by diverting runoff along the contour at a nonscouring velocity. The terrace is 10 to 20 inches high and 15 to 30 feet wide and has gently sloping sides, a rounded crown, and a dish-shaped channel along the upper side. It may be nearly level or have a grade toward one or both ends.

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

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

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

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

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

Clayey. (general soil textural class). A general textural term that includes sandy clay, silty clay, and clay (Soil Taxonomy, p. 470).

Clayey. (taxonomic: family level criteria). A specific textural name referring to fine earth (particles less than 2mm in size) within the control section, containing 35 percent or more clay by weight; rock fragments are less than 35 percent by volume (Soil Taxonomy, p 385).

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 textured soil. Sand or loamy sand.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

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

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

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

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

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

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

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

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

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

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

Cemented.—Hard; little affected by moistening.

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

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

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

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

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

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

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

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

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

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

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

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

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

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

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

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 the activities of man or other animals or of a catastrophe in nature, such as fire, that exposes the surface.

Erosion classes. Classes that estimate past erosion based on the following:

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 of the area the thickness of the surface layer is within the normal range of variability of the uneroded soil. (Soil map units having class 1 erosion typically are not designated in the map unit description.

Class 2.—Soils that have lost on the average of 25 to 75 percent of the original A horizon or 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 on the average of 75 percent or more of the original A horizon or the uppermost 8 inches (if the original A horizon was less than 8 inches thick). In most areas of class 3 erosion, material below the original A horizon is exposed at the surface in cultivated areas. The plow layer consists entirely or largely of material that was below the original A horizon.

Class 4.—Soils that have lost all of the A horizon or 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 indentified only in spots. Some areas may be smooth, but most have an intricate pattern of gullies.

Erosion hazard. Terms describing the potential for future erosion, inherent in the soil itself, if inadequately protected. The following definitions are based on estimated annual soil loss in metric tons per hectare (values determined by the Universal Soil Loss Equation assuming bare soil conditions and using rainfall and climate factors for North Carolina):

None	0 t/ha
Slight	less than 2.5 t/ha
Moderate	2.5 to 10 t/ha
Severe	10 to 25 t/ha
Very severe	more than 25 t/ha

Excess fines (in tables). Excess silt and clay are in the soil. The soil is not a source of gravel or sand for construction purposes.

Fall line. The physiographic region where the Coastal Plain and the Piedmont landscapes meet.

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

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, and clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

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

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 and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.5 centimeters) in diameter.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

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

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 upper case letter represents the major horizons. Numbers or lower case 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 at the surface of a mineral soil.

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 O, A, or E horizon. The B horizon is, in part, a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as accumulation of clay, sesquioxides, humus, or a combination of these; prismatic or blocky structure; redder or browner colors than those in the A horizon; or a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

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 A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Arabic numeral 2 precedes the letter C.

R layer.—Consolidated rock (unweathered bedrock) beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

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

Igneous rock. Rock formed by solidification of molten rock; generally crystalline in nature.

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

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

Irrigation. Application of water to soils to assist in production of crops.

Landscape position. A particular location on a generally defined landscape. It is usually broken down to ridge, shoulder, side slope, toe slope, terrace, and bottom land.

Large stones (in tables). Rock fragments that are 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the soil.

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

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy (general: soil textural class). 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 (Soil Taxonomy, p. 470).

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

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

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

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

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

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

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

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

No-till planting. A method of planting crops with no seed bed preparation. A specialized planter opens a slit in the soil surface and places the seed at the desired depth. Weeds are controlled with herbicides.

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.

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

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

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

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, 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 with 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 exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

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

Poor outlets (in tables). In these areas, surface or subsurface drainage outlets are difficult or expensive to install.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of the 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 degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

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

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

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

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

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

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

Seasonal high water table. The highest level of a saturated zone (the apparent or perched water table) over a continuous period of more than 2 weeks in most years, but not a permanent water table.

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

Seepage (in tables). The movement of water through the soil 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 or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

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

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

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.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

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

Slough. A slight depression originating from the flood plain that dissects a terrace. Sloughs are narrow, finger-like, and poorly drained. They are the first areas to flood and the last to drain.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

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

Soil compaction. An alteration of soil structures that ultimately can affect biological and chemical soil properties. Soil compaction decreases voids, increases bulk density, and can restrict root penetration.

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

	Millimeters
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

Solid refuse. The nonliquid household waste and nontoxic industrial waste that is disposed of in a landfill.

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 underlying material. The living roots and plant and animal activities are largely confined to the solum.

Spoil. Soil or parent material, or both, that have been dug from one place and dumped in another. It generally is a mix of sand, silt, clay, and gravel or rock.

Stone line. A concentration of coarse fragments in a soil. Generally it is indicative of an old weathered surface. In a cross section, thickness of the line can be one fragment or more. It generally overlies material that weathered in place, and it is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter.

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 wind 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 grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Breaking up a compact subsoil by pulling a special chisel through the soil.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in organic matter content than the overlying surface layer.

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."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed on the contour or at a slight angle to the contour across sloping soils. The terrace intercepts surface runoff, so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Sand.—Soil material that contains 85 percent or more sand; the percentage of silt plus 1-1/2 times the percentage of clay does not exceed 15.

Loamy sand.—Soil material that contains at the upper limit 85 to 90 percent sand, and the percentage of silt plus 1-1/2 times the percentage of clay is not less than 15; at the lower limit it contains not less than 70 to 85 percent sand, and the percentage of silt plus twice the percentage of clay does not exceed 30.

Sandy loam.—Soil material that contains either 20 percent clay or less and the percentage of silt plus twice the percentage of clay exceeds 30, and 52 percent or more sand; or less than 7 percent clay, less than 50 percent silt, and between 43 and 52 percent sand.

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.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Underlying material. Technically the C horizon; the part of the soil below the biologically altered A and B horizons.

Unstable fill (in tables). There is a risk of caving or sloughing on banks of fill material.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Uplift. Heaving movement of the earth's crust resulting in vertical displacement or tilting of the strata over large areas of the earth's surface.

Weathering. All physical and chemical changes produced by atmospheric agents in rocks or other deposits at or near the earth's surface. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of course grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. This contrasts with poorly graded soil.

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 ovendry basis, at which a plant (specifically sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Data recorded in the period 1951-78 at Nashville, North Carolina]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	51.5	29.0	38.6	76	10	131	3.51	2.05	4.80	8	2.5
February---	54.1	30.9	42.5	76	11	40	3.72	2.05	5.19	7	1.3
March------	61.4	38.0	49.7	85	21	113	3.93	2.77	4.98	8	1.0
April------	72.7	47.3	60.0	91	30	304	3.31	2.16	4.35	6	0.0
May--------	79.6	55.9	65.0	95	37	710	3.57	2.00	4.95	7	0.0
June-------	85.8	63.8	74.9	99	48	747	3.92	2.27	5.38	6	0.0
July-------	89.2	67.9	78.6	100	54	887	4.88	2.19	7.18	8	0.0
August-----	87.9	67.4	77.7	98	54	859	4.78	2.27	6.94	8	0.0
September--	83.3	60.7	72.0	96	42	660	3.63	1.54	5.40	5	0.0
October----	73.3	48.4	60.9	90	29	338	2.74	.82	4.31	5	0.0
November---	64.1	39.0	51.6	82	20	97	3.16	1.44	4.62	5	0.0
December---	53.8	30.9	42.4	76	11	34	3.38	1.85	4.71	6	1.1
Yearly:											
Average--	71.4	48.3	59.5	---	---	---	---	---	---	---	---
Extreme--	---	---	---	101	9	---	---	---	---	---	---
Total----	---	---	---	---	---	4,920	44.53	39.05	49.55	79	5.9

* 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 °F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Data recorded in the period 1951-78 at Nashville, 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--	March 23	April 2	April 22
2 years in 10 later than--	March 16	March 28	April 16
5 years in 10 later than--	March 3	March 18	April 5
First freezing temperature in fall:			
1 year in 10 earlier than--	November 5	October 28	October 17
2 years in 10 earlier than--	November 11	November 2	October 21
5 years in 10 earlier than--	November 22	November 10	October 30

TABLE 3.--GROWING SEASON

[Data recorded in the period 1951-78 at Nashville, North Carolina]

Probability	Daily minimum temperature during growing season: Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	237	218	186
8 years in 10	246	224	193
5 years in 10	264	236	208
2 years in 10	281	248	223
1 year in 10	290	255	230

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	4,015	1.2
AbA	Altavista-Urban land complex, 0 to 3 percent slopes, rarely flooded	111	*
AuB	Autryville loamy sand, 0 to 6 percent slopes	2,118	0.6
Bb	Bibb loam, frequently flooded	9,117	2.6
BnB	Blanton loamy sand, 0 to 6 percent slopes	379	0.1
BoB	Bonneau loamy sand, 0 to 4 percent slopes	14,281	4.1
Co	Congaree fine sandy loam, frequently flooded	818	0.2
DoA	Dothan loamy sand, 0 to 3 percent slopes	5,703	1.6
FaB	Faceville loamy sand, 1 to 6 percent slopes	6,265	1.8
GeB	Georgeville loam, 2 to 6 percent slopes	24,058	6.9
GeC	Georgeville loam, 6 to 10 percent slopes	16,727	4.8
GeE	Georgeville loam, 10 to 25 percent slopes	6,040	1.7
GgB	Georgeville gravelly loam, 2 to 6 percent slopes	3,229	0.9
GgC	Georgeville gravelly loam, 6 to 10 percent slopes	1,510	0.4
GgE	Georgeville gravelly loam, 10 to 25 percent slopes	342	0.1
GhB	Georgeville-Urban land complex, 0 to 6 percent slopes	867	0.3
GoA	Goldsboro fine sandy loam, 0 to 2 percent slopes	12,599	3.6
GrB	Gritney sandy loam, 2 to 6 percent slopes	3,239	0.9
GrC	Gritney sandy loam, 6 to 10 percent slopes	2,275	0.7
HeB	Helena coarse sandy loam, 2 to 6 percent slopes	1,204	0.4
Me	Meggett loam, frequently flooded	3,915	1.1
NaC	Nankin sandy loam, 2 to 10 percent slopes	7,247	2.1
NnB	Nason loam, 2 to 6 percent slopes	7,629	2.2
NnC	Nason loam, 6 to 10 percent slopes	4,569	1.3
NoA	Norfolk loamy sand, 0 to 2 percent slopes	19,800	5.7
NoB	Norfolk loamy sand, 2 to 6 percent slopes	40,262	11.6
NpB	Norfolk-Wedowee complex, 2 to 6 percent slopes	3,923	1.1
NrB	Norfolk, Georgeville, and Faceville soils, 2 to 8 percent slopes	32,905	9.5
NuB	Norfolk-Urban land complex, 0 to 6 percent slopes	4,793	1.4
Ra	Rains fine sandy loam	47,784	13.8
Rb	Rains-Urban land complex	1,908	0.6
To	Tomotley fine sandy loam, rarely flooded	5,028	1.5
Ud	Udorthents, loamy	2,470	0.7
Ur	Urban land	1,367	0.4
WeB	Wedowee coarse sandy loam, 2 to 6 percent slopes	14,637	4.2
WeC	Wedowee coarse sandy loam, 6 to 10 percent slopes	4,384	1.3
Wh	Wehadkee loam, frequently flooded	22,046	6.4
WkA	Wickham fine sandy loam, 0 to 3 percent slopes, rarely flooded	3,524	1.0
WoA	Worsham loam, 0 to 2 percent slopes	2,256	0.7
	Water	1,817	0.5
	Total	347,161	100.0

* Less than 0.1 percent.

TABLE 5.--LAND CAPABILITY CLASSES AND YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Peanuts	Cotton lint	Wheat	Sweet potatoes	Cucumber	Sunflowers	Tall fescue	Improved bermudagrass
		Bu	Bu	Lbs	Lbs	Lbs	Bu	Bu	Tons	Lbs	AUM*	AUM*
AaA------------- Altavista	IIw	135	40	2,600	---	500	45	---	325	1,500	10.0	---
AbA------------- Altavista-Urban land	---	---	---	---	---	---	---	---	---	---	---	---
AuB------------- Autryville	IIs	65	20	1,900	3,000	600	20	200	---	800	---	9.0
Bb-------------- Bibb	Vw	---	---	---	---	---	---	---	---	---	8.0	---
BnB------------- Blanton	IIIs	60	25	1,900	2,200	---	20	200	---	800	---	8.0
BoB------------- Bonneau	IIs	75	25	2,400	2,900	550	35	300	250	1,300	---	10.0
Co-------------- Congaree	IIw	140	40	---	---	---	---	---	---	---	---	10.0
DoA------------- Dothan	I	125	40	2,800	3,800	750	50	400	400	1,800	---	10.0
FaB------------- Faceville	IIe	110	40	2,500	4,000	750	45	300	300	1,200	---	10.0
GeB------------- Georgeville	IIe	80	35	2,000	---	600	40	---	---	1,100	7.0	---
GeC------------- Georgeville	IIIe	75	30	---	---	---	35	---	---	900	6.5	---
GeE------------- Georgeville	VIe	---	---	---	---	---	---	---	---	---	---	---
GgB------------- Georgeville	IIe	80	25	---	---	---	30	---	---	---	7.0	---
GgC------------- Georgeville	IIIe	75	---	---	---	---	---	---	---	---	6.5	---
GgE------------- Georgeville	VIe	---	---	---	---	---	---	---	---	---	---	---
GhB------------- Georgeville-Urban land	---	---	---	---	---	---	---	---	---	---	---	---
GoA------------- Goldsboro	IIw	135	45	2,700	3,100	600	50	---	400	1,500	10.0	---
GrB------------- Gritney	IIIe	85	35	2,500	1,850	500	40	---	300	1,200	8.0	6.0
GrC------------- Gritney	IVe	---	---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--LAND CAPABILITY CLASSES AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Peanuts	Cotton lint	Wheat	Sweet potatoes	Cucumber	Sunflowers	Tall fescue	Improved bermudagrass
		Bu	Bu	Lbs	Lbs	Lbs	Bu	Bu	Tons	Lbs	AUM*	AUM*
HeB------------- Helena	IIe	85	30	2,100	---	575	40	---	---	1,000	7.5	---
Me-------------- Meggett	VIw	---	---	---	---	---	---	---	---	---	---	---
NaC------------- Nankin	IIIe	55	20	1,800	1,800	---	---	---	---	1,000	---	7.0
NnB------------- Nason	IIe	80	30	2,000	---	600	40	---	---	1,100	9.0	---
NnC------------- Nason	IIIe	75	25	---	---	---	40	---	---	---	9.0	---
NoA------------- Norfolk	I	125	40	2,800	3,400	700	50	400	400	1,800	7.0	8.0
NoB------------- Norfolk	IIe	110	35	2,600	3,200	650	45	350	350	1,600	7.0	8.0
NpB------------- Norfolk-Wedowee	IIe	90	30	2,400	2,900	600	40	325	325	1,450	7.0	8.0
NrB------------- Norfolk, Georgeville and Faceville	IIe	90	35	2,500	2,800	600	40	320	320	1,100	8.0	8.0
NuB------------- Norfolk-Urban land	---	---	---	---	---	---	---	---	---	---	---	---
Ra-------------- Rains	IIIw	140	40	---	---	---	45	---	---	---	9.0	---
Rb-------------- Rains-Urban land	---	---	---	---	---	---	---	---	---	---	---	---
To-------------- Tomotley	IVw	---	---	---	---	---	---	---	---	---	---	---
Ud. Udorthents												
Ur. Urban land												
WeB------------- Wedowee	IIe	75	20	1,900	---	475	30	---	---	1,000	7.0	6.0
WeC------------- Wedowee	IIIe	70	---	---	---	400	---	---	---	---	6.0	5.0
Wh-------------- Wehadkee	VIw	---	---	---	---	---	---	---	---	---	---	---
WkA------------- Wickham	I	110	40	2,800	3,300	650	50	400	400	1,800	7.0	8.0

See footnote at end of table.

TABLE 5.--LAND CAPABILITY CLASSES AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Peanuts	Cotton lint	Wheat	Sweet potatoes	Cucumber	Sunflowers	Tall fescue	Improved bermudagrass
		Bu	Bu	Lbs	Lbs	Lbs	Bu	Bu	Tons	Lbs	AUM*	AUM*
WoA------------- Worsham	IVw	---	---	---	---	---	---	---	---	---	---	---

* 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.

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]
		Acres	Acres	Acres
I	29,027	---	---	---
II	167,943	134,112	17,432	16,399
III	85,839	37,676	47,784	379
IV	9,559	2,275	7,284	---
V	9,117	---	9,117	---
VI	32,343	6,382	25,961	---
VII	---	---	---	---
VIII	---	---	---	---

TABLE 7.--SEASONAL PRODUCTION OF FORAGES

Forage 1/	Percent of Yield												Remarks
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Orchardgrass-Ladino 2/	1	2	12	25	20	10	6	6	7	8	2	1	About same total production as fescue-Ladino clover. Production is higher earlier in season and lower in fall.
Fescue-Ladino 2/	2	3	10	25	10	8	4	4	8	10	4	2	
Fescue 3/	2	6	14	20	15	6	2	3	7	15	8	2	About same or slightly lower total production as fescue-Ladino clover, but quality is not as good. Production can increase 40% if topdressed with 200 pounds of nitrogen per acre in split applications.
Small grains 4/	4	10	12	27	28	3	---	---	---	8	7	3	Can also be overseeded in bermudagrass.
Alfalfa 2/	---	---	---	25	20	15	10	15	10	3	2	---	Used mostly for hay. High rates of N-P-K are needed with 2 to 3 pounds actual boron per acre added.
Sericea 2/	---	---	---	5	15	30	25	15	10	---	---	---	Graze in spring when 6 to 8 inches tall; graze to 4 inches. If used for hay, mow at 14 inches.
Annual lespedeza 2/	---	---	---	---	3	12	35	30	18	2	---	---	Good supplemental grazing crop for July to September. Will reseed the next year if allowed to make seed.
Coastal bermudagrass 5/	---	---	---	8	10	15	25	20	15	5	2	---	About same total production as fescue. Excellent forage to fill in with cool-season grazing system. Production can increase up to 80% if topdressed with 200 pounds of nitrogen per acre in split applications.
Common bermudagrass 6/	---	---	---	8	12	15	25	20	12	8	---	---	Can be seeded or sprigged.
Bahiagrass 6/	---	---	---	2	4	21	25	21	16	9	2	---	Slow to become established. Not cold tolerant.
Sorghum-sudan hybrids or millet 7/	---	---	---	---	7	20	30	25	15	3	---	---	Potential prussic acid problems in hybrids. Split applications of nitrogen reduce nitrate problems.

1/ Fertilizer analysis and rates depend on growth potential of the species and the soil; the ones listed are general guides if a soil test is not available. Check lime status every 3 years.

2/ 400 to 800 pounds of 0-10-20 or 0-9-27 (N-P-K) annually.

3/ 400 to 800 pounds of 0-10-20 or 0-9-27 (N-P-K) annually and topdressing of 100 pounds of nitrogen per acre in split applications, about February 15 and September 1.

4/ 500 pounds of 6-6-12 (N-P-K) at planting, and topdressing of 100 pounds of nitrogen per acre applied in two applications, February to April.

5/ 400 to 800 pounds of 0-10-20 or 0-9-27 (N-P-K) annually and topdressing of 100 pounds of nitrogen per acre in split applications, April 20, June 15, July 15, or after each cutting or grazing.

6/ 400 to 800 pounds of 0-10-20 or 0-9-27 (N-P-K) annually and topdressing of 200 pounds of nitrogen per acre in split applications, April 20, June 15, July 15, or after each cutting or grazing.

7/ 600 to 800 pounds of 6-6-12 (N-P-K) or equivalent at planting and topdressing of 50 pounds of nitrogen per acre when 6 inches tall and after each cutting or when grazed to 6 inches.

TABLE 8.--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]

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class1/	Trees to plant
AaA: Altavista	9W	Slight	Moderate	Slight	Loblolly pine	91	9	Loblolly pine.
					Longleaf pine	84	8	
					Shortleaf pine	---	---	
					Sweetgum	---	---	
					White oak	---	---	
					Red maple	---	---	
					Yellow-poplar	---	---	
					Southern red oak	---	---	
					Northern red oak	---	---	
					Water oak	---	---	
AuB: Autryville	7S	Slight	Moderate	Moderate	Loblolly pine	77	7	Loblolly pine, longleaf pine.
					Longleaf pine	---	---	
					Southern red oak	---	---	
					Shumard oak	---	---	
					Hickory	---	---	
					Sweetgum	---	---	
					Red maple	---	---	
					White oak	---	---	
					Post oak	---	---	
Bb: Bibb	7W	Slight	Severe	Severe	Sweetgum	90	7	Hardwoods. 2/
					Water oak	---	---	
					Blackgum	---	---	
BnB: Blanton	8S	Slight	Moderate	Moderate	Loblolly pine	80	8	Loblolly pine, longleaf pine.
					Longleaf pine	70	6	
					Bluejack oak	---	---	
					Turkey oak	---	---	
					Southern red oak	---	---	
					Live oak	---	---	
BoB: Bonneau	9S	Slight	Moderate	Moderate	Loblolly pine	86	9	Loblolly pine, longleaf pine.
					Longleaf pine	75	6	
					White oak	---	---	
					Hickory	---	---	
Co: Congaree	9A	Slight	Slight	Slight	Loblolly pine	90	9	Loblolly pine.
					Sweetgum	---	---	
					Yellow-poplar	98	7	
					Cherrybark oak	---	---	
					Eastern cottonwood	---	---	
					American sycamore	---	---	
					Black walnut	---	---	
					Scarlet oak	---	---	
					Willow oak	---	---	
DoA: Dothan	9A	Slight	Slight	Slight	Loblolly pine	88	9	Loblolly pine.
					Longleaf pine	---	---	
FaB: Faceville	8A	Slight	Slight	Slight	Loblolly pine	82	8	Loblolly pine.
					Longleaf pine	---	---	

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	Productivity class1/	
GeB, GeC----------- Georgeville	8A	Slight	Slight	Slight	Loblolly pine--------	81	8	Loblolly pine.
					Longleaf pine--------	---	---	
					Shortleaf pine-------	63	7	
					White oak------------	---	---	
					Scarlet oak----------	---	---	
					Southern red oak-----	---	---	
GeE---------------- Georgeville	8R	Moderate	Moderate	Slight	Loblolly pine--------	81	8	Loblolly pine.
					Longleaf pine--------	---	---	
					Shortleaf pine-------	63	7	
					White oak------------	---	---	
					Scarlet oak----------	---	---	
					Southern red oak-----	---	---	
GgB, GgC----------- Georgeville	8A	Slight	Slight	Slight	Loblolly pine--------	81	8	Loblolly pine.
					Longleaf pine--------	---	---	
					Shortleaf pine-------	63	7	
					White oak------------	---	---	
					Scarlet oak----------	---	---	
					Southern red oak-----	---	---	
GgE---------------- Georgeville	8R	Moderate	Moderate	Slight	Loblolly pine--------	81	8	Loblolly pine.
					Longleaf pine--------	---	---	
					Shortleaf pine-------	63	7	
					White oak------------	---	---	
					Scarlet oak----------	---	---	
					Southern red oak-----	---	---	
GoA---------------- Goldsboro	9W	Slight	Moderate	Slight	Loblolly pine--------	90	9	Loblolly pine.
					Longleaf pine--------	---	---	
					Sweetgum-------------	---	---	
					Southern red oak-----	---	---	
					White oak------------	---	---	
					Water oak------------	---	---	
					Red maple------------	---	---	
GrB, GrC----------- Gritney	8A	Slight	Slight	Slight	Loblolly pine--------	80	8	Loblolly pine.
					Longleaf pine--------	65	5	
HeB---------------- Helena	8W	Slight	Moderate	Slight	Loblolly pine--------	80	8	Loblolly pine.
					Shortleaf pine-------	63	7	
					White oak------------	---	---	
					Yellow-poplar--------	---	---	
Me----------------- Meggett	11W	Slight	Severe	Severe	Loblolly pine--------	100	11	Hardwoods. 2/
					Black tupelo---------	---	---	
					Red maple------------	---	---	
					Yellow-poplar--------	---	---	
					River birch----------	---	---	
					Water oak------------	---	---	
					Swamp oak------------	---	---	
NaC---------------- Nankin	8A	Slight	Slight	Slight	Loblolly pine--------	80	8	Loblolly pine.
					Longleaf pine--------	70	6	
NnB, NnC----------- Nason	8A	Slight	Slight	Slight	Loblolly pine--------	80	8	Loblolly pine.
					Northern red oak-----	66	3	
					Virginia pine--------	69	8	
					Shortleaf pine-------	66	7	

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class1/	Trees to plant
NoA, NoB----------- Norfolk	8A	Slight	Slight	Slight	Loblolly pine--------	82	8	Loblolly pine.
					Longleaf pine--------	68	5	
NpB:								
Norfolk-----------	8A	Slight	Slight	Slight	Loblolly pine--------	82	8	Loblolly pine.
					Longleaf pine--------	68	5	
Wedowee-----------	8A	Slight	Slight	Slight	Loblolly pine--------	80	8	Loblolly pine.
					Shortleaf pine-------	69	8	
					Southern red oak-----	70	4	
					White oak------------	65	3	
NrB:								
Norfolk-----------	8A	Slight	Slight	Slight	Loblolly pine--------	82	8	Loblolly pine.
					Longleaf pine--------	68	5	
Georgeville-------	8A	Slight	Slight	Slight	Loblolly pine--------	81	8	Loblolly pine.
					Longleaf pine--------	---	---	
					Shortleaf pine-------	63	7	
					White oak------------	---	---	
					Scarlet oak----------	---	---	
					Southern red oak-----	---	---	
Faceville---------	8A	Slight	Slight	Slight	Loblolly pine--------	82	8	Loblolly pine.
					Longleaf pine--------	---	---	
Ra----------------- Rains	9W	Slight	Severe	Severe	Loblolly pine--------	94	9	Loblolly pine. 3/
					Sweetgum-------------	---	---	
To----------------- Tomotley	9W	Slight	Severe	Severe	Loblolly pine--------	94	9	Loblolly pine. 3/
					Sweetgum-------------	---	---	
					Water tupelo---------	---	---	
WeB, WeC----------- Wedowee	8A	Slight	Slight	Slight	Loblolly pine--------	80	8	Loblolly pine.
					Shortleaf pine-------	69	8	
					Southern red oak-----	70	4	
					White oak------------	65	3	
Wh----------------- Wehadkee	8W	Slight	Severe	Severe	Sweetgum-------------	93	8	Hardwoods. 2/
					Yellow-poplar--------	98	7	
					Willow oak-----------	---	---	
					Green ash------------	96	4	
					Water oak------------	---	---	
					White ash------------	88	4	
WkA---------------- Wickham	9A	Slight	Slight	Slight	Loblolly pine--------	90	9	Loblolly pine.
					Yellow-poplar--------	100	8	
					Southern red oak-----	---	---	
WoA---------------- Worsham	9W	Slight	Severe	Severe	Loblolly pine--------	88	9	Loblolly pine. 3/
					Northern red oak-----	80	4	
					Virginia pine--------	80	8	
					Pin oak--------------	85	4	
					Yellow-poplar--------	91	6	

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

1/ Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands. Cubic meters per hectare can be converted to cubic feet per acre by multiplying by 14.3. It can be converted to board feet by multiplying by a factor of about 71.

2/ To establish hardwoods on a forested site, rely on natural reproduction (seeds and sprouts) of acceptable species. Special site preparation techniques may be required. Planting of hardwoods on a specific site should be done upon recommendations of a forester.

3/ Potential productivity is attainable in areas adequately drained or bedded, or both.

TABLE 9.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AaA: Altavista	Severe: flooding.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
AbA:					
Altavista	Severe: flooding.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
Urban land.					
AuB: Autryville	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
Bb: Bibb	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
BnB: Blanton	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
BoB: Bonneau	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
Co: Congaree	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
DoA: Dothan	Slight	Slight	Slight	Slight	Moderate: droughty.
FaB: Faceville	Slight	Slight	Moderate: slope.	Slight	Slight.
GeB: Georgeville	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
GeC: Georgeville	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
GeE: Georgeville	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
GgB, GgC: Georgeville	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
GgE: Georgeville	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
GhB:					
Georgeville	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
Urban land.					

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
GoA------------------- Goldsboro	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Slight----------	Slight.
GrB------------------- Gritney	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight----------	Slight.
GrC------------------- Gritney	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight----------	Moderate: slope.
HeB------------------- Helena	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, slope.	Moderate: wetness.	Moderate: wetness.
Me-------------------- Meggett	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
NaC------------------- Nankin	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight----------	Slight.
NnB------------------- Nason	Slight----------	Slight----------	Moderate: slope, small stones.	Slight----------	Slight.
NnC------------------- Nason	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
NoA------------------- Norfolk	Slight----------	Slight----------	Slight----------	Slight----------	Slight.
NoB------------------- Norfolk	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
NpB:					
Norfolk--------------	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
Wedowee--------------	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
NrB:					
Norfolk--------------	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
Georgeville----------	Slight----------	Slight----------	Moderate: slope, small stones.	Slight----------	Slight.
Faceville------------	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
NuB:					
Norfolk--------------	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
Urban land.					
Ra-------------------- Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Rb:					
Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Urban land.					
To Tomotley	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ud. Udorthents					
Ur. Urban land					
WeB Wedowee	Slight	Slight	Moderate: slope.	Slight	Slight.
WeC Wedowee	Slight	Slight	Severe: slope.	Slight	Slight.
Wh Wehadkee	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
WkA Wickham	Severe: flooding.	Slight	Slight	Slight	Slight.
WoA Worsham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

TABLE 10.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AaA: Altavista	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
AbA:										
Altavista	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Urban land.										
AuB: Autryville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Bb: Bibb	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
BnB: Blanton	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
BoB: Bonneau	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Co: Congaree	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
DoA: Dothan	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
FaB: Faceville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
GeB, GeC: Georgeville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
GeE: Georgeville	Very poor.	Very poor.	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
GgB, GgC: Georgeville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
GgE: Georgeville	Very poor.	Very poor.	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
GhB:										
Georgeville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Urban land.										
GoA: Goldsboro	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
GrB, GrC: Gritney	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
HeB: Helena	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

TABLE 10.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Me------------------ Meggett	Poor	Fair	Fair	Fair	Good	Good	Good	Fair	Good	Good.
NaC----------------- Nankin	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
NnB----------------- Nason	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NnC----------------- Nason	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
NoA, NoB------------ Norfolk	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NpB:										
Norfolk------------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Wedowee------------	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NrB:										
Norfolk------------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Georgeville--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Faceville----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
NuB:										
Norfolk------------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Urban land.										
Ra------------------ Rains	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Good	Good.
Rb:										
Rains--------------	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Good	Good.
Urban land.										
To------------------ Tomotley	Very poor.	Very poor.	Poor	Fair	Fair	Good	Good	Very poor.	Poor	Good.
Ud. Udorthents										
Ur. Urban land										
WeB----------------- Wedowee	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WeC----------------- Wedowee	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

TABLE 10.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Wh----------------- Wehadkee	Very poor.	Poor	Poor	Fair	Fair	Good	Fair	Poor	Fair	Fair.
WkA---------------- Wickham	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WoA---------------- Worsham	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.

TABLE 11.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AaA: Altavista	Severe: wetness, cutbanks cave.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Moderate: wetness.
AbA:						
Altavista	Severe: wetness, cutbanks cave.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Moderate: wetness.
Urban land.						
AuB: Autryville	Moderate: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty.
Bb: Bibb	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
BnB: Blanton	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty.
BoB: Bonneau	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty.
Co: Congaree	Moderate: wetness, flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
DoA: Dothan	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty.
FaB: Faceville	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
GeB: Georgeville	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Severe: low strength.	Slight.
GeC: Georgeville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
GeE: Georgeville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
GgB: Georgeville	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Severe: low strength.	Moderate: small stones.
GgC: Georgeville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: small stones, slope.
GgE: Georgeville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
GhB:						
Georgeville	Moderate: too clayey.	Slight	Slight	Slight	Severe: low strength.	Slight.
Urban land.						
GoA Goldsboro	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Slight.
GrB Gritney	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Slight.
GrC Gritney	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: slope.
HeB Helena	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
Me Meggett	Severe: wetness, too clayey.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, wetness, flooding.	Severe: wetness, flooding.
NaC Nankin	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Slight	Slight.
NnB Nason	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: slope, shrink-swell.	Severe: low strength.	Slight.
NnC Nason	Moderate: slope, too clayey.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
NoA Norfolk	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight	Slight.
NoB Norfolk	Moderate: wetness.	Slight	Moderate: wetness.	Moderate: slope.	Slight	Slight.
NpB:						
Norfolk	Moderate: wetness.	Slight	Moderate: wetness.	Moderate: slope.	Slight	Slight.
Wedowee	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
NrB:						
Norfolk	Moderate: wetness.	Slight	Moderate: wetness.	Moderate: slope.	Slight	Slight.
Georgeville	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Severe: low strength.	Slight.
Faceville	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
NuB:						
Norfolk	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight	Slight.
Urban land.						
Ra: Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Rb:						
Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Urban land.						
To: Tomotley	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.
Ud. Udorthents						
Ur. Urban land						
WeB: Wedowee	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
WeC: Wedowee	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
Wh: Wehadkee	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
WkA: Wickham	Slight	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Slight.
WoA: Worsham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, low strength.	Severe: wetness.

TABLE 12.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AaA: Altavista	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, seepage, wetness.	Fair: wetness.
AbA:					
Altavista	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, seepage, wetness.	Fair: wetness.
Urban land.					
AuB: Autryville	Moderate: wetness.	Severe: seepage.	Slight	Severe: seepage.	Fair: too sandy.
Bb: Bibb	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
BnB: Blanton	Moderate: wetness.	Severe: seepage.	Moderate: too sandy.	Severe: seepage.	Fair: too sandy.
BoB: Bonneau	Moderate: wetness.	Severe: seepage.	Severe: wetness.	Moderate: wetness.	Good.
Co: Congaree	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
DoA: Dothan	Severe: wetness, percs slowly.	Moderate: seepage.	Moderate: wetness.	Slight	Good.
FaB: Faceville	Slight	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
GeB: Georgeville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
GeC: Georgeville	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
GeE: Georgeville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
GgB: Georgeville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
GgC: Georgeville	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
GgE: Georgeville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
GhB:					
Georgeville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
Urban land.					
GoA: Goldsboro	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
GrB: Gritney	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey.
GrC: Gritney	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Fair: too clayey.
HeB: Helena	Severe: wetness, percs slowly.	Severe: wetness.	Severe: depth to rock, wetness, too clayey.	Moderate: wetness, depth to rock.	Poor: too clayey, hard to pack.
Me: Meggett	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
NaC: Nankin	Severe: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
NnB: Nason	Moderate: depth to rock, percs slowly.	Moderate: slope, seepage, depth to rock.	Severe: too clayey, depth to rock.	Moderate: depth to rock.	Poor: too clayey, hard to pack.
NnC: Nason	Moderate: slope, depth to rock, percs slowly.	Severe: slope.	Severe: too clayey, depth to rock.	Moderate: slope, depth to rock.	Poor: too clayey, hard to pack.
NoA, NoB: Norfolk	Moderate: wetness.	Moderate: seepage.	Slight	Slight	Good.
NpB:					
Norfolk	Moderate: wetness.	Moderate: seepage.	Slight	Slight	Good.
Wedowee	Moderate: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey, thin layer.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
NrB:					
Norfolk	Moderate: wetness.	Moderate: seepage.	Slight	Slight	Good.
Georgeville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
Faceville	Slight	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
NuB:					
Norfolk	Moderate: wetness.	Moderate: seepage.	Slight	Slight	Good.
Urban land.					
Ra: Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, seepage.	Poor: wetness.
Rb:					
Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, seepage.	Poor: wetness.
Urban land.					
To: Tomotley	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Ud. Udorthents					
Ur. Urban land					
WeB: Wedowee	Moderate: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey, thin layer.
WeC: Wedowee	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope, thin layer.
Wh: Wehadkee	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
WkA: Wickham	Moderate: flooding.	Severe: flooding.	Severe: seepage.	Moderate: flooding.	Fair: thin layer.
WoA: Worsham	Severe: percs slowly, wetness.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness, too clayey, wetness.

TABLE 13.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
AaA------------------- Altavista	Fair: wetness, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Good.
AbA:				
Altavista------------	Fair: wetness, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Good.
Urban land.				
AuB------------------- Autryville	Good-----------------	Improbable: thin layer.	Improbable: too sandy.	Fair: too sandy.
Bb-------------------- Bibb	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
BnB------------------- Blanton	Good-----------------	Probable-------------	Improbable: too sandy.	Fair: too sandy.
BoB------------------- Bonneau	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Co-------------------- Congaree	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
DoA------------------- Dothan	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, thin layer.
FaB------------------- Faceville	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
GeB, GeC-------------- Georgeville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
GeE------------------- Georgeville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
GgB, GgC-------------- Georgeville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
GgE------------------- Georgeville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
GhB:				
Georgeville----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Urban land.				

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
GoA------------------- Goldsboro	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
GrB, GrC-------------- Gritney	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
HeB------------------- Helena	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Me-------------------- Meggett	Poor: wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
NaC------------------- Nankin	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
NnB, NnC-------------- Nason	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, area reclaim.
NoA, NoB-------------- Norfolk	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
NpB:				
Norfolk--------------	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Wedowee--------------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
NrB:				
Norfolk--------------	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Georgeville----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Faceville------------	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
NuB:				
Norfolk--------------	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Urban land.				
Ra-------------------- Rains	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Rb:				
Rains----------------	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Urban land.				
To-------------------- Tomotley	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Ud. Udorthents				
Ur. Urban land				
WeB, WeC Wedowee	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Wh Wehadkee	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
WkA Wickham	Fair: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Good.
WoA Worsham	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, thin layer.

TABLE 14.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
AaA----- Altavista	Moderate: seepage.	Moderate: deep to water.	Favorable-----	Wetness-----	Wetness-----	Favorable.
AbA:						
Altavista-----	Moderate: seepage.	Moderate: deep to water.	Favorable-----	Wetness-----	Wetness-----	Favorable.
Urban land.						
AuB----- Autryville	Severe: seepage.	Severe: no water.	Deep to water	Droughty, fast intake, slope.	Too sandy-----	Droughty.
Bb----- Bibb	Moderate: seepage.	Moderate: slow refill.	Flooding-----	Wetness, flooding.	Wetness-----	Wetness.
BnB----- Blanton	Severe: seepage.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.	Droughty.
BoB----- Bonneau	Moderate: seepage, slope.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake, slope.	Soil blowing---	Droughty.
Co----- Congaree	Moderate: seepage.	Moderate: deep to water, slow refill.	Flooding-----	Wetness, soil blowing.	Erodes easily, wetness, soil blowing.	Erodes easily.
DoA----- Dothan	Moderate: seepage.	Severe: no water.	Deep to water	Fast intake, droughty.	Favorable-----	Droughty.
FaB----- Faceville	Moderate: seepage.	Severe: no water.	Deep to water	Fast intake, slope.	Favorable-----	Favorable.
GeB----- Georgeville	Moderate: seepage.	Severe: no water.	Deep to water	Slope-----	Favorable-----	Favorable.
GeC, GeE----- Georgeville	Moderate: seepage.	Severe: no water.	Deep to water	Slope-----	Slope-----	Slope.
GgB----- Georgeville	Moderate: seepage.	Severe: no water.	Deep to water	Slope-----	Favorable-----	Favorable.
GgC, GgE----- Georgeville	Moderate: seepage.	Severe: no water.	Deep to water	Slope-----	Slope-----	Slope.
GhB:						
Georgeville-----	Moderate: seepage.	Severe: no water.	Deep to water	Slope-----	Favorable-----	Favorable.
Urban land.						
GoA----- Goldsboro	Moderate: seepage.	Moderate: slow refill.	Favorable-----	Wetness-----	Wetness-----	Favorable.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
GrB: Gritney	Slight	Severe: no water.	Deep to water	Percs slowly, slope, soil blowing.	Percs slowly, erodes easily, soil blowing.	Erodes easily, percs slowly.
GrC: Gritney	Slight	Severe: no water.	Deep to water	Percs slowly, slope, soil blowing.	Slope, erodes easily, soil blowing.	Slope, erodes easily, percs slowly.
HeB: Helena	Moderate: depth to rock, slope.	Severe: no water.	Percs slowly, slope.	Slope, wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
Me: Meggett	Moderate: seepage.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
NaC: Nankin	Moderate: seepage, slope.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
NnB: Nason	Moderate: seepage, depth to rock, slope.	Severe: no water.	Deep to water	Erodes easily, slope.	Erodes easily	Erodes easily.
NnC: Nason	Severe: slope.	Severe: no water.	Deep to water	Erodes easily, slope.	Slope, erodes easily.	Slope, erodes easily.
NoA: Norfolk	Moderate: seepage.	Severe: deep to water.	Deep to water	Fast intake	Favorable	Favorable.
NoB: Norfolk	Moderate: seepage.	Severe: deep to water.	Deep to water	Slope	Favorable	Favorable.
NpB: Norfolk	Moderate: seepage.	Severe: deep to water.	Deep to water	Slope	Favorable	Favorable.
Wedowee	Moderate: slope.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
NrB: Norfolk	Moderate: seepage.	Severe: deep to water.	Deep to water	Slope	Favorable	Favorable.
Georgeville	Moderate: seepage.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
Faceville	Moderate: seepage.	Severe: no water.	Deep to water	Fast intake, slope.	Favorable	Favorable.
NuB: Norfolk	Moderate: seepage.	Severe: deep to water.	Deep to water	Slope	Favorable	Favorable.
Urban land.						
Ra: Rains	Moderate: seepage.	Moderate: slow refill.	Favorable	Wetness	Wetness, soil blowing.	Wetness.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
Rb:						
Rains	Moderate: seepage.	Moderate: slow refill.	Favorable	Wetness	Wetness, soil blowing.	Wetness.
Urban land.						
To Tomotley	Moderate: seepage.	Severe: slow refill.	Favorable	Wetness, soil blowing.	Wetness, soil blowing.	Wetness.
Ud. Udorthents						
Ur. Urban land						
WeB Wedowee	Moderate: slope.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
WeC Wedowee	Severe: slope.	Severe: no water.	Deep to water	Slope	Slope	Slope.
Wh Wehadkee	Moderate: seepage.	Slight	Flooding	Wetness, flooding.	Wetness	Wetness.
WkA Wickham	Moderate: seepage.	Severe: no water.	Deep to water	Favorable	Favorable	Favorable.
WoA Worsham	Slight	Severe: slow refill.	Percs slowly	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.

TABLE 15.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification Unified	Classification AASHTO	Fragments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
AaA--------------	0-14	Sandy loam-------	SM	A-2	0	95-100	90-100	50-99	15-35	---	NP
Altavista	14-44	Clay loam, sandy clay loam, loam.	CL, CL-ML, SC, SM-SC	A-4, A-6, A-7	0	95-100	95-100	60-99	45-75	20-45	5-28
	44-60	Variable---------	---	---	---	---	---	---	---	---	---
AbA:											
Altavista-------	0-14	Sandy loam-------	SM	A-2	0	95-100	90-100	50-99	15-35	---	NP
	14-44	Clay loam, sandy clay loam, loam.	CL, CL-ML, SC, SM-SC	A-4, A-6, A-7	0	95-100	95-100	60-99	45-75	20-45	5-28
	44-60	Variable---------	---	---	---	---	---	---	---	---	---
Urban land.											
AuB--------------	0-21	Loamy sand-------	SP-SM, SM	A-2, A-3	0	100	100	50-100	5-20	---	NP
Autryville	21-51	Sandy loam, sandy clay loam, fine sandy loam.	SM	A-2	0	100	100	50-100	15-30	<25	NP-3
	51-61	Sand, loamy sand, loamy fine sand.	SP-SM, SM	A-2, A-3	0	100	100	50-100	5-20	---	NP
	61-81	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2, A-4	0	100	100	60-100	20-49	<30	NP-10
Bb---------------	0-11	Loam-------------	ML, CL-ML	A-4	0-5	95-100	90-100	80-90	50-80	<25	NP-7
Bibb	11-60	Sandy loam, loam, silt loam.	SM, SM-SC, ML, CL-ML	A-2, A-4	0-10	60-100	50-100	40-100	30-90	<30	NP-7
BnB--------------	0-49	Loamy sand-------	SM	A-2-4	0	100	95-100	85-100	13-25	---	NP
Blanton	49-85	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, SM	A-4, A-2-4, A-2-6, A-6	0	100	95-100	69-96	25-50	16-45	3-22
BoB--------------	0-35	Loamy sand-------	SM	A-2	0	100	100	50-95	15-35	---	NP
Bonneau	35-93	Sandy loam, sandy clay loam, fine sandy loam.	SC, SM-SC	A-2, A-6, A-4	0	100	100	60-100	30-50	21-40	4-21
Co---------------	0-5	Fine sandy loam	SM, SM-SC	A-2, A-4	0	95-100	95-100	70-100	20-50	<30	NP-7
Congaree	5-92	Silty clay loam, fine sandy loam, loam.	SC, ML, CL, SM	A-4, A-6, A-7	0	95-100	95-100	70-100	40-90	25-50	3-22
DoA--------------	0-16	Loamy sand-------	SM	A-2	0	95-100	92-100	60-80	13-30	---	NP
Dothan	16-29	Sandy clay loam, sandy loam, fine sandy loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	92-100	68-90	23-49	<40	NP-16
	29-84	Sandy clay loam, sandy clay.	SM-SC, SC, SM, CL	A-2, A-4, A-6, A-7	0	95-100	92-100	70-95	30-53	25-45	4-23
FaB--------------	0-10	Loamy sand-------	SM	A-2	0	90-100	85-100	72-97	13-25	---	NP
Faceville	10-19	Sandy clay loam, sandy clay.	SC, ML, CL, SM	A-4, A-6	0	98-100	90-100	85-98	46-66	<35	NP-13
	19-70	Sandy clay, clay, clay loam.	CL, SC, CH	A-6, A-7	0	98-100	95-100	75-99	45-72	25-52	11-25

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
GeB, GeC, GeE---- Georgeville	0-6	Loam-------------	ML	A-4	0-2	90-100	85-100	65-100	51-98	<40	NP-10
	6-11	Silty clay loam, clay loam.	CL, ML	A-6, A-7, A-4	0-1	90-100	90-100	85-100	70-98	30-49	8-20
	11-38	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	95-100	95-100	90-100	75-98	41-75	15-35
	38-78	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
GgB, GgC, GgE---- Georgeville	0-6	Gravelly loam	ML	A-4	0-2	90-100	85-100	65-100	51-98	<40	NP-10
	6-11	Silty clay loam, clay loam.	CL, ML	A-6, A-7, A-4	0-1	90-100	90-100	85-100	70-98	30-49	8-20
	11-38	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	95-100	95-100	90-100	75-98	41-75	15-35
	38-78	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-----	0-6	Loam-------------	ML	A-4	0-2	90-100	85-100	65-100	51-98	<40	NP-10
	6-11	Silty clay loam, clay loam.	CL, ML	A-6, A-7, A-4	0-1	90-100	90-100	85-100	70-98	30-49	8-20
	11-38	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	95-100	95-100	90-100	75-98	41-75	15-35
	38-78	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
Urban land.											
GoA-------------- Goldsboro	0-10	Fine sandy loam	SM, SM-SC, SC	A-2, A-4, A-6	0	95-100	95-100	50-100	15-45	<25	NP-14
	10-93	Sandy clay loam, sandy loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0	98-100	95-100	60-100	25-55	16-37	4-18
GrB, GrC--------- Gritney	0-7	Sandy loam-------	SM, SM-SC	A-2-4, A-4	0	100	95-100	75-99	18-42	<30	NP-6
	7-14	Sandy clay loam, sandy clay, clay loam.	SC, CL	A-6, A-7	0	100	95-100	80-100	36-60	35-48	15-25
	14-53	Sandy clay, clay, clay loam.	CH, CL, SC	A-7	0	100	95-100	80-100	45-70	44-62	22-40
	53-60	Sandy clay loam	CH, CL, SC	A-7	0	100	95-100	80-100	40-55	40-55	20-35
	60-80	Variable---------	---	---	---	---	---	---	---	---	---
HeB-------------- Helena	0-18	Coarse sandy loam	SM, SM-SC, SC	A-2, A-4	0-5	95-100	90-100	51-90	26-46	<30	NP-9
	18-31	Sandy clay loam, clay loam, sandy loam.	CL, SC	A-6, A-7	0-5	95-100	95-100	70-90	49-70	30-49	15-26
	31-48	Clay loam, sandy clay, clay.	CH	A-7	0-5	95-100	95-100	73-97	56-86	50-85	24-50
	48-68	Variable---------	---	---	---	---	---	---	---	---	---
Me--------------- Meggett	0-6	Loam-------------	ML, CL-ML	A-4	0	100	90-100	85-100	51-75	<35	NP-10
	6-12	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	0	100	90-100	85-100	51-90	30-60	20-30
	12-44	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	0	100	90-100	85-100	51-90	30-60	20-30
	44-60	Sandy clay, clay loam, sandy clay loam.	CL, SC, SM	A-4, A-6	0	90-100	65-100	50-100	40-60	<40	NP-25

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
NaC-------------- Nankin	0-4	Sandy loam-------	SM, SM-SC	A-2, A-4	0	85-100	85-100	70-90	25-45	<25	NP-4
	4-27	Sandy clay, clay, sandy clay loam.	SC, CL	A-4, A-6, A-7	0	98-100	95-100	75-95	40-70	25-45	7-20
	27-60	Sandy clay loam, sandy loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	98-100	95-100	70-85	25-55	<30	NP-12
NnB, NnC--------- Nason	0-8	Loam-------------	ML, CL-ML, SM	A-4	0-5	80-100	75-100	55-95	35-85	<38	NP-10
	8-36	Silty clay loam, silty clay, clay.	CL, CH	A-7	0-5	80-100	75-100	70-95	65-90	40-60	15-30
	36-58	Channery silt loam, silt loam.	CL-ML, SC, GM-GC	A-2, A-4, A-6	0-5	50-80	45-75	40-75	30-70	20-35	4-12
	58	Weathered bedrock	---	---	---	---	---	---	---	---	---
NoA, NoB--------- Norfolk	0-19	Loamy sand-------	SM	A-2	0	95-100	92-100	50-95	13-30	<20	NP
	19-64	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-63	20-38	4-15
	64-82	Variable---------	---	---	---	---	---	---	---	---	---
NpB:											
Norfolk---------	0-19	Loamy sand-------	SM	A-2	0	95-100	92-100	50-95	13-30	<20	NP
	19-64	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-63	20-38	4-15
	64-82	Variable---------	---	---	---	---	---	---	---	---	---
Wedowee---------	0-13	Sandy loam-------	SM, SM-SC	A-4, A-2-4	0	95-100	90-100	60-99	23-50	<30	NP-6
	13-39	Sandy clay, clay loam, clay.	SC, ML, CL, SM	A-6, A-7	0	95-100	95-100	65-97	45-75	30-58	10-25
	39-63	Variable---------	---	---	---	---	---	---	---	---	---
NrB:											
Norfolk---------	0-19	Loamy sand-------	SM	A-2	0	95-100	92-100	50-95	13-30	<20	NP
	19-64	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-63	20-38	4-15
	64-82	Variable---------	---	---	---	---	---	---	---	---	---
Georgeville-----	0-6	Loam-------------	ML	A-4	0-2	90-100	85-100	65-100	51-98	<40	NP-10
	6-11	Silty clay loam, clay loam.	CL, ML	A-6, A-7, A-4	0-1	90-100	90-100	85-100	70-98	30-49	8-20
	11-38	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	95-100	95-100	90-100	75-98	41-75	15-35
	38-78	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
Faceville-------	0-10	Loamy sand-------	SM	A-2	0	90-100	85-100	72-97	13-25	---	NP
	10-19	Sandy clay loam, sandy clay.	SC, ML, CL, SM	A-4, A-6	0	98-100	90-100	85-98	46-66	<35	NP-13
	19-70	Sandy clay, clay, clay loam.	CL, SC, CH	A-6, A-7	0	98-100	95-100	75-99	45-72	25-52	11-25
NuB:											
Norfolk---------	0-19	Loamy sand-------	SM	A-2	0	95-100	92-100	50-95	13-30	<20	NP
	19-64	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-63	20-38	4-15
	64-82	Variable---------	---	---	---	---	---	---	---	---	---

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
NuB:											
Urban land.											
Ra----------------	0-14	Fine sandy loam	SM, ML	A-2, A-4	0	100	95-100	50-85	25-56	<35	NP-10
Rains	14-48	Sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	55-98	30-70	18-40	4-20
	48-85	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7	0	100	98-100	60-98	36-72	18-45	4-28
Rb:											
Rains-----------	0-14	Fine sandy loam	SM, ML	A-2, A-4	0	100	95-100	50-85	25-56	<35	NP-10
	14-48	Sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	55-98	30-70	18-40	4-20
	48-85	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7	0	100	98-100	60-98	36-72	18-45	4-28
Urban land.											
To----------------	0-7	Fine sandy loam	SM	A-2, A-4	0	98-100	95-100	75-98	25-50	<30	NP-7
Tomotley	7-53	Fine sandy loam, sandy clay loam, clay loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0	98-100	95-100	75-98	30-70	20-40	6-18
	53-80	Variable---------	---	---	---	---	---	---	---	---	---
Ud.											
Udorthents											
Ur.											
Urban land											
WeB, WeC----------	0-13	Coarse sandy loam	SM, SM-SC	A-4, A-2-4	0	95-100	90-100	60-99	23-50	<30	NP-6
Wedowee	13-39	Sandy clay, clay loam, clay.	SC, ML, CL, SM	A-6, A-7	0	95-100	95-100	65-97	45-75	30-58	10-25
	39-63	Variable---------	---	---	---	---	---	---	---	---	---
Wh----------------	0-5	Loam-------------	SM, SC, SM-SC	A-2, A-4	0	100	95-100	60-90	30-50	<35	NP-10
Wehadkee	5-37	Loam, sandy clay loam, clay loam.	ML, CL, CL-ML	A-6, A-7, A-4	0	100	99-100	85-100	51-90	25-50	7-25
	37-62	Variable---------	---	---	---	---	---	---	---	---	---
WkA---------------	0-14	Fine sandy loam	SM, SM-SC, ML, CL-ML	A-4	0	95-100	90-100	70-100	45-80	<25	NP-7
Wickham	14-41	Sandy clay loam, clay loam, loam.	CL-ML, CL, SC, SM-SC	A-2, A-4, A-6, A-7-6	0	95-100	90-100	75-100	30-70	20-41	5-15
	41-67	Variable---------	---	---	---	---	---	---	---	---	---
WoA---------------	0-7	Loam-------------	CL, CL-ML	A-4, A-6	0-5	90-100	85-100	70-100	50-90	20-35	4-12
Worsham	7-50	Sandy clay loam, sandy clay, clay.	SC, CH, CL	A-2, A-7	0-5	90-100	85-100	70-100	30-95	42-66	22-40
	50-67	Sandy loam, sandy clay loam, clay loam.	SC, CL	A-2, A-4, A-6, A-7	0-10	90-95	80-95	50-90	30-70	20-50	8-30

TABLE 16.--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]

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH				Pct
AaA--------------- Altavista	0-14	7-15	1.40-1.60	2.0-20	0.07-0.12	4.5-6.0	Low-----------	0.20	5	.5-3
	14-44	18-35	1.30-1.50	0.6-2.0	0.12-0.20	4.5-6.0	Low-----------	0.24		
	44-60	---	---	---	---	---	-------------	---		
AbA:										
Altavista--------	0-14	7-15	1.40-1.60	2.0-20	0.07-0.12	4.5-6.0	Low-----------	0.20	5	.5-3
	14-44	18-35	1.30-1.50	0.6-2.0	0.12-0.20	4.5-6.0	Low-----------	0.24		
	44-60	---	---	---	---	---	-------------	---		
Urban land.										
AuB--------------- Autryville	0-21	2-10	1.60-1.70	>6.0	0.04-0.09	4.5-6.5	Low-----------	0.10	5	.5-1
	21-51	10-25	1.40-1.60	2.0-6.0	0.08-0.13	4.5-5.5	Low-----------	0.10		
	51-61	2-8	1.60-1.70	>6.0	0.03-0.08	4.5-5.5	Low-----------	0.10		
	61-81	10-35	1.40-1.60	0.6-2.0	0.10-0.15	4.5-5.5	Low-----------	0.17		
Bb---------------- Bibb	0-11	2-18	1.20-1.55	0.6-2.0	0.15-0.20	4.5-5.5	Low-----------	0.28	5	.5-2
	11-60	2-18	1.30-1.60	0.6-2.0	0.12-0.20	4.5-5.5	Low-----------	0.37		
BnB--------------- Blanton	0-49	5-13	1.35-1.60	6.0-20	0.05-0.10	4.5-6.0	Low-----------	0.15	5	.5-2
	49-85	12-30	1.60-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low-----------	0.20		
BoB--------------- Bonneau	0-35	5-15	1.30-1.70	6.0-20	0.05-0.11	4.5-6.0	Low-----------	0.15	5	.5-2
	35-93	18-35	1.40-1.60	0.6-2.0	0.10-0.15	4.5-5.5	Low-----------	0.20		
Co---------------- Congaree	0-5	5-15	1.30-1.60	0.6-6.0	0.12-0.18	4.5-7.3	Low-----------	0.24	5	<4
	5-92	18-35	1.20-1.50	0.6-2.0	0.12-0.20	4.5-7.3	Low-----------	0.37		
DoA--------------- Dothan	0-16	5-15	1.30-1.60	2.0-6.0	0.06-0.10	4.5-6.0	Very low------	0.15	5	<.5
	16-29	18-35	1.40-1.60	0.6-2.0	0.12-0.16	4.5-6.0	Low-----------	0.28		
	29-84	18-40	1.45-1.70	0.2-0.6	0.08-0.12	4.5-6.0	Low-----------	0.28		
FaB--------------- Faceville	0-10	2-10	---	6.0-20	0.06-0.09	4.5-5.5	Low-----------	0.17	5	.5-1
	10-19	20-36	---	0.6-2.0	0.12-0.15	4.5-5.5	Low-----------	0.37		
	19-70	35-55	---	0.6-2.0	0.12-0.18	4.5-6.0	Low-----------	0.37		
GeB, GeC, GeE, GgB, GgC, GgE--- Georgeville	0-6	5-27	1.20-1.40	0.6-2.0	0.15-0.20	4.5-6.0	Low-----------	0.32	4	.5-2
	6-11	27-35	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low-----------	0.32		
	11-38	35-60	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low-----------	0.28		
	38-78	15-40	1.20-1.40	0.6-2.0	0.05-0.10	4.5-5.5	Low-----------	0.32		
GhB:										
Georgeville------	0-6	5-27	1.20-1.40	0.6-2.0	0.15-0.20	4.5-6.0	Low-----------	0.32	4	.5-2
	6-11	27-35	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low-----------	0.32		
	11-38	35-60	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low-----------	0.28		
	38-78	15-40	1.20-1.40	0.6-2.0	0.05-0.10	4.5-5.5	Low-----------	0.32		
Urban land.										
GoA--------------- Goldsboro	0-10	5-15	1.40-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low-----------	0.20	5	.5-2
	10-93	18-30	1.30-1.50	0.6-2.0	0.11-0.15	4.5-5.5	Low-----------	0.24		

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH				Pct
GrB, GrC--------- Gritney	0-7	8-30	1.50-1.60	6.0-20	0.10-0.15	4.5-5.5	Low----------	0.20	3	1-4
	7-14	30-45	1.55-1.65	0.6-2.0	0.10-0.15	4.5-5.5	Moderate-----	0.32		
	14-53	35-60	1.55-1.70	0.06-0.2	0.10-0.15	4.5-5.5	High---------	0.32		
	53-60	20-35	1.50-1.65	0.2-0.6	0.10-0.15	4.5-5.5	High---------	0.28		
	60-80	---	---	---	---	---	-------------	---		
HeB------------- Helena	0-18	5-20	1.58-1.62	2.0-6.0	0.10-0.12	4.5-6.0	Low----------	0.15	3	.5-2
	18-31	20-35	1.46-1.56	0.2-0.6	0.13-0.15	4.5-5.5	Moderate-----	0.28		
	31-48	35-60	1.44-1.55	0.06-0.2	0.13-0.15	4.5-5.5	High---------	0.28		
	48-68	---	---	---	---	---	-------------	---		
Me--------------- Meggett	0-6	15-25	1.20-1.40	0.6-2.0	0.15-0.20	4.5-6.5	Low----------	0.28	5	2-8
	6-12	40-60	1.45-1.60	0.06-0.2	0.13-0.18	5.1-8.4	High---------	0.32		
	12-44	40-60	1.50-1.75	0.06-0.2	0.13-0.18	6.1-8.4	High---------	0.32		
	44-60	25-50	1.40-1.60	0.2-2.0	0.12-0.16	6.1-8.4	Moderate-----	0.28		
NaC-------------- Nankin	0-4	7-20	1.45-1.55	2.0-6.0	0.08-0.12	4.5-5.5	Low----------	0.28	3	.5-1
	4-27	35-50	1.60-1.70	0.2-0.6	0.11-0.16	4.5-5.5	Low----------	0.24		
	27-60	15-35	1.60-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
NnB, NnC--------- Nason	0-8	10-25	1.25-1.55	0.6-2.0	0.14-0.20	4.5-6.5	Low----------	0.37	4	1-3
	8-36	35-50	1.30-1.60	0.6-2.0	0.12-0.19	4.5-5.5	Moderate-----	0.28		
	36-58	10-25	1.25-1.55	0.6-2.0	0.15-0.20	4.5-5.5	Low----------	0.28		
	58	---	---	---	---	---	-------------	---		
NoA, NoB--------- Norfolk	0-19	2-8	1.55-1.75	6.0-20	0.06-0.11	4.5-6.0	Low----------	0.20	5	.5-2
	19-64	18-35	1.30-1.45	0.6-2.0	0.10-0.20	4.5-5.5	Low----------	0.24		
	64-82	---	---	---	---	---	-------------	---		
NpB:										
Norfolk---------	0-19	2-8	1.55-1.75	6.0-20	0.06-0.11	4.5-6.0	Low----------	0.20	5	.5-2
	19-64	18-35	1.30-1.45	0.6-2.0	0.10-0.20	4.5-5.5	Low----------	0.24		
	64-82	---	---	---	---	---	-------------	---		
Wedowee---------	0-13	6-20	1.25-1.60	2.0-6.0	0.10-0.18	4.5-5.5	Low----------	0.24	3	<1
	13-39	35-45	1.30-1.50	0.6-2.0	0.12-0.18	4.5-5.5	Moderate-----	0.28		
	39-63	---	---	---	---	---	-------------	---		
NrB:										
Norfolk---------	0-19	2-8	1.55-1.75	6.0-20	0.06-0.11	4.5-6.0	Low----------	0.20	5	.5-2
	19-64	18-35	1.30-1.45	0.6-2.0	0.10-0.20	4.5-5.5	Low----------	0.24		
	64-82	---	---	---	---	---	-------------	---		
Georgeville-----	0-6	5-27	1.20-1.40	0.6-2.0	0.15-0.20	4.5-6.0	Low----------	0.32	4	.5-2
	6-11	27-35	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low----------	0.32		
	11-38	35-60	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low----------	0.28		
	38-78	15-40	1.20-1.40	0.6-2.0	0.05-0.10	4.5-5.5	Low----------	0.32		
Faceville-------	0-10	2-10	---	6.0-20	0.06-0.09	4.5-5.5	Low----------	0.17	5	.5-1
	10-19	20-36	---	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.37		
	19-70	35-55	---	0.6-2.0	0.12-0.18	4.5-6.0	Low----------	0.37		
NuB:										
Norfolk---------	0-19	2-8	1.55-1.75	6.0-20	0.06-0.11	4.5-6.0	Low----------	0.20	5	.5-2
	19-64	18-35	1.30-1.45	0.6-2.0	0.10-0.20	4.5-5.5	Low----------	0.24		
	64-82	---	---	---	---	---	-------------	---		
Urban land.										

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH				Pct
Ra----------------- Rains	0-14	5-20	1.30-1.60	2.0-6.0	0.10-0.14	4.5-6.5	Low-----------	0.20	5	1-6
	14-48	18-35	1.30-1.50	0.6-2.0	0.11-0.15	4.5-5.5	Low-----------	0.24		
	48-85	18-40	1.30-1.50	0.6-2.0	0.10-0.15	4.5-5.5	Low-----------	0.28		
Rb:										
Rains------------	0-14	5-20	1.30-1.60	2.0-6.0	0.10-0.14	4.5-6.5	Low-----------	0.20	5	1-6
	14-48	18-35	1.30-1.50	0.6-2.0	0.11-0.15	4.5-5.5	Low-----------	0.24		
	48-85	18-40	1.30-1.50	0.6-2.0	0.10-0.15	4.5-5.5	Low-----------	0.28		
Urban land.										
To----------------- Tomotley	0-7	5-20	1.30-1.60	2.0-6.0	0.10-0.15	3.6-5.5	Low-----------	0.20	5	1-6
	7-53	18-35	1.30-1.50	0.6-2.0	0.12-0.18	3.6-5.5	Low-----------	0.20		
	53-80	---	---	---	---	---	-------------	---		
Ud. Udorthents										
Ur. Urban land										
WeB, WeC---------- Wedowee	0-13	6-20	1.25-1.60	2.0-6.0	0.10-0.18	4.5-5.5	Low-----------	0.24	3	<1
	13-39	35-45	1.30-1.50	0.6-2.0	0.12-0.18	4.5-5.5	Moderate------	0.28		
	39-63	---	---	---	---	---	-------------	---		
Wh----------------- Wehadkee	0-5	5-20	1.35-1.60	2.0-6.0	0.10-0.15	4.5-6.5	Low-----------	0.24	5	2-5
	5-37	18-35	1.30-1.50	0.6-2.0	0.16-0.20	4.5-6.5	Low-----------	0.32		
	37-62	---	---	---	---	---	-------------	---		
WkA---------------- Wickham	0-14	8-15	1.45-1.65	2.0-6.0	0.11-0.16	4.5-6.0	Low-----------	0.24	5	.5-2
	14-41	18-25	1.30-1.40	0.6-2.0	0.12-0.17	4.5-6.0	Low-----------	0.24		
	41-67	---	---	---	---	---	-------------	---		
WoA---------------- Worsham	0-7	10-25	1.25-1.55	0.6-2.0	0.14-0.20	4.5-5.5	Low-----------	0.37	4	1-3
	7-50	30-55	1.35-1.65	<0.06	0.10-0.16	4.5-5.5	Moderate------	0.28		
	50-67	10-40	1.20-1.50	0.2-0.6	0.08-0.19	4.5-5.5	Moderate------	0.28		

TABLE 17.--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 more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			In			
AaA---------------- Altavista	C	Rare---------	Very brief	Mar-Jul	1.5-2.5	Apparent	Dec-Mar	>60	---	Moderate	Moderate.
AbA:											
Altavista---------	C	Rare---------	Very brief	Mar-Jul	1.5-2.5	Apparent	Dec-Mar	>60	---	Moderate	Moderate.
Urban land.											
AuB---------------- Autryville	A	None---------	---	---	4.0-6.0	Apparent	Jan-Apr	>60	---	Low-------	High.
Bb----------------- Bibb	C	Frequent-----	Brief------	Dec-May	0.5-1.5	Apparent	Dec-Apr	>60	---	High------	Moderate.
BnB---------------- Blanton	A	None---------	---	---	5.0-6.0	Perched	Dec-Mar	>60	---	High------	High.
BoB---------------- Bonneau	A	None---------	---	---	3.5-5.0	Apparent	Dec-Mar	>60	---	Low-------	High.
Co----------------- Congaree	B	Frequent-----	Brief------	Nov-Apr	2.5-4.0	Apparent	Nov-Apr	>60	---	Moderate	Moderate.
DoA---------------- Dothan	B	None---------	---	---	3.0-5.0	Perched	Jan-Apr	>60	---	Moderate	Moderate.
FaB---------------- Faceville	B	None---------	---	---	>6.0	---	---	>60	---	Low-------	Moderate.
GeB, GeC, GeE, GgB, GgC, GgE----- Georgeville	B	None---------	---	---	>6.0	---	---	>60	---	High------	High.
GhB:											
Georgeville-------	B	None---------	---	---	>6.0	---	---	>60	---	High------	High.
Urban land.											
GoA---------------- Goldsboro	B	None---------	---	---	2.0-3.0	Apparent	Dec-Apr	>60	---	Moderate	High.
GrB, GrC----------- Gritney	C	None---------	---	---	>6.0	---	---	>60	---	High------	Moderate.
HeB---------------- Helena	C	None---------	---	---	1.5-2.5	Perched	Jan-Apr	48-60	Soft	High------	High.
Me----------------- Meggett	D	Frequent-----	Long-------	Dec-Apr	0-1.0	Apparent	Nov-Apr	>60	---	High------	Moderate.
NaC---------------- Nankin	C	None---------	---	---	>6.0	---	---	>60	---	High------	High.
NnB, NnC----------- Nason	C	None---------	---	---	>6.0	---	---	40-60	Soft	Moderate	High.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			In			
NoA, NoB----------- Norfolk	B	None---------	---	---	4.0-6.0	Apparent	Jan-Mar	>60	---	Moderate	High.
NpB: Norfolk-----------	B	None---------	---	---	4.0-6.0	Apparent	Jan-Mar	>60	---	Moderate	High.
Wedowee-----------	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	High.
NrB: Norfolk-----------	B	None---------	---	---	4.0-6.0	Apparent	Jan-Mar	>60	---	Moderate	High.
Georgeville-------	B	None---------	---	---	>6.0	---	---	>60	---	High------	High.
Faceville---------	B	None---------	---	---	>6.0	---	---	>60	---	Low-------	Moderate.
NuB: Norfolk-----------	B	None---------	---	---	4.0-6.0	Apparent	Jan-Mar	>60	---	Moderate	High.
Urban land.											
Ra----------------- Rains	B/D	None---------	---	---	0-1.0	Apparent	Nov-Apr	>60	---	High------	High.
Rb: Rains-------------	B/D	None---------	---	---	0-1.0	Apparent	Nov-Apr	>60	---	High------	High.
Urban land.											
To----------------- Tomotley	B/D	Rare---------	---	---	0-1.0	Apparent	Dec-Mar	>60	---	High------	High.
Ud. Udorthents											
Ur. Urban land											
WeB, WeC----------- Wedowee	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	High.
Wh----------------- Wehadkee	D	Frequent-----	Brief------	Nov-Jun	0-2.5	Apparent	Dec-May	>60	---	High------	Moderate.
WkA---------------- Wickham	B	Rare---------	---	---	>6.0	---	---	>60	---	Moderate	High.
WoA---------------- Worsham	D	None---------	---	---	0-1.0	Apparent	Nov-Apr	>60	---	High------	Moderate.

TABLE 18.--ENGINEERING INDEX TEST DATA

[Dashes indicate data were not available. NP means nonplastic]

Soil name, report number, horizon, and depth in inches	Classification		Grain-size distribution							Liquid limit	Plasticity index	Moisture density	
			Percentage smaller than--				Percentage smaller than--						
	AASHTO	Unified	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm			Maximum dry density	Optimum moisture
										Pct		Lb/ft^3	Pct
Georgeville loam * [S77NC-127-2]													
Ap ------ 0-6	A-4(0)	ML	94	92	88	66	21	11	8	---	NP	105.1	14.7
Bt ------ 6-50	A-7-5(30)	MH	100	100	100	88	65	54	51	62	29	96.2	24.7
BC ------ 50-70	A-7-5(14)	ML	99	99	96	72	44	33	30	48	17	99.8	21.3

* 3 miles west of Spring Hope on State Road 1333 at intersection of State Road 1317 and 1315; 60 feet north of State Road 1315 in Pinewood Forest.

TABLE 19.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Altavista	Fine-loamy, mixed, thermic Aquic Hapludults
Autryville	Loamy, siliceous, thermic Arenic Paleudults
Bibb	Coarse-loamy, siliceous, acid, thermic Typic Fluvaquents
Blanton	Loamy, siliceous, thermic Grossarenic Paleudults
Bonneau	Loamy, siliceous, thermic Arenic Paleudults
Congaree	Fine-loamy, mixed, nonacid, thermic Typic Udifluvents
Dothan	Fine-loamy, siliceous, thermic Plinthic Paleudults
Faceville	Clayey, kaolinitic, thermic Typic Paleudults
Georgeville	Clayey, kaolinitic, thermic Typic Hapludults
Goldsboro	Fine-loamy, siliceous, thermic Aquic Paleudults
Gritney	Clayey, mixed, thermic Typic Hapludults
Helena	Clayey, mixed, thermic Aquic Hapludults
Meggett	Fine, mixed, thermic Typic Albaqualfs
Nankin	Clayey, kaolinitic, thermic Typic Hapludults
Nason	Clayey, mixed, thermic Typic Hapludults
Norfolk	Fine-loamy, siliceous, thermic Typic Paleudults
Rains	Fine-loamy, siliceous, thermic Typic Paleaquults
Tomotley	Fine-loamy, mixed, thermic Typic Ochraquults
Wedowee	Clayey, kaolinitic, thermic Typic Hapludults
Wehadkee	Fine-loamy, mixed, nonacid, thermic Typic Fluvaquents
Wickham	Fine-loamy, mixed, thermic Typic Hapludults
Worsham	Clayey, mixed, thermic Typic Ochraquults

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