United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
South Carolina
Agricultural Experiment
Station and South
Carolina Land Resources
Conservation Commission

Soil Survey of Hampton County, South Carolina

How To Use This Soil Survey

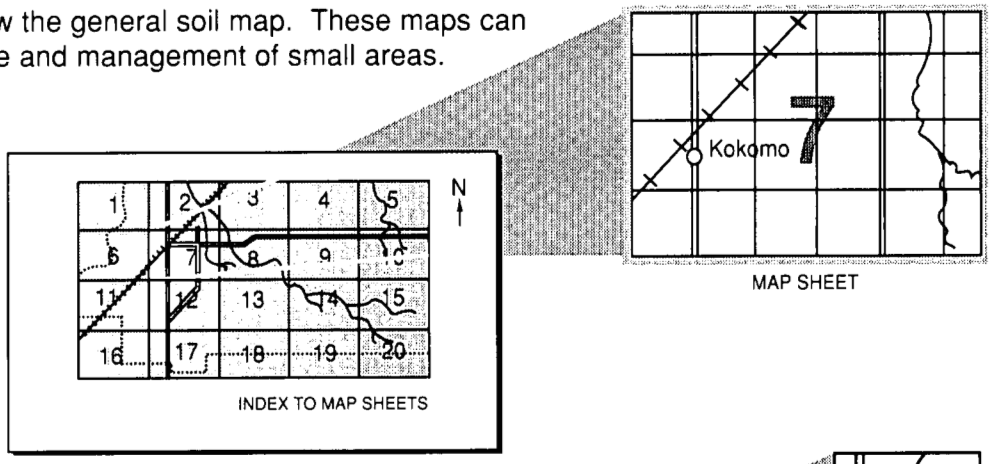
General Soil Map

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

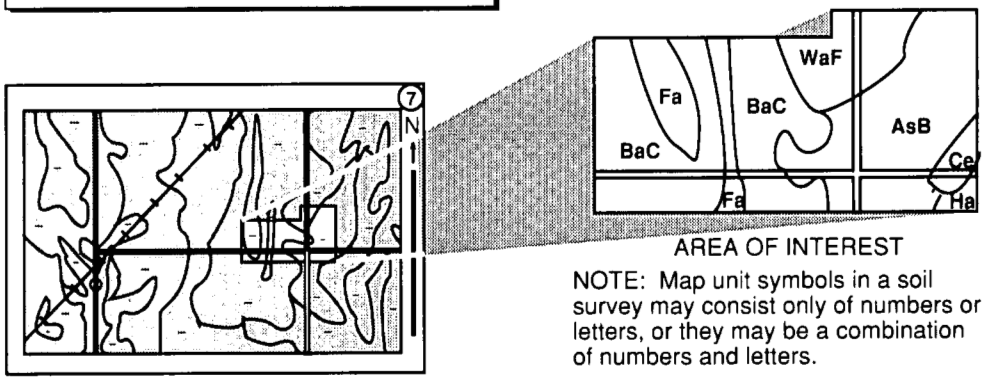
To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

Detailed Soil Maps

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



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



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.

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.

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 Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1989. Soil names and descriptions were approved in 1990. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1989. This survey was made cooperatively by the Natural Resources Conservation Service, the South Carolina Agricultural Experiment Station, and the South Carolina Land Resources Conservation Commission. The survey is part of the technical assistance furnished to the Hampton 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 Natural Resources Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

Cover: Watermelons in an area of Bonneau fine sand, 0 to 2 percent slopes.

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ApB—Alpin sand, 0 to 6 percent slopes 14
Ar—Argent fine sandy loam, ponded 14
AtA—Autryville sand, 0 to 2 percent slopes 15
AtB—Autryville sand, 2 to 6 percent slopes 16
BaA—Blanton fine sand, 0 to 2 percent slopes 17
BaB—Blanton fine sand, 2 to 6 percent slopes 17
BaC—Blanton fine sand, 6 to 10 percent slopes 18
BnA—Blanton fine sand, moderately wet, 0 to 2 percent slopes 19
BoA—Bonneau fine sand, 0 to 2 percent slopes 19
BoB—Bonneau fine sand, 2 to 6 percent slopes 20
Br—Brookman clay loam, ponded 21
By—Byars loam, ponded 21
CaA—Cahaba loamy sand, 0 to 2 percent slopes 22
CaB—Cahaba loamy sand, 2 to 6 percent slopes 22
Ce—Centenary sand 22
ChA—Chipley fine sand, 0 to 2 percent slopes 23
Cx—Coxville loam 24
Ec—Echaw sand 24
Eo—Elloree loamy fine sand, occasionally flooded 25
EpB—Emporia loamy sand, 2 to 6 percent slopes 25
EpC—Emporia loamy sand, 6 to 10 percent slopes 26
EuA—Eulonia fine sandy loam, 0 to 2 percent slopes 27
EuB—Eulonia fine sandy loam, 2 to 6 percent slopes 27
FoB—Foxworth fine sand, 0 to 6 percent slopes 28
GoA—Goldsboro loamy sand, 0 to 2 percent slopes 29
Gr—Grifton-Osier complex, frequently flooded 29
Hp—Haplaquents, loamy 30
LaB—Lakeland sand, 0 to 6 percent slopes 30
Le—Leon sand 31
Ly—Lynchburg loamy fine sand 31
Na—Nakina fine sandy loam, occasionally flooded 32
NeA—Nansemond loamy sand, 0 to 2 percent slopes 33
NoA—Noboco loamy sand, 0 to 2 percent slopes 33
NoB—Noboco loamy sand, 2 to 6 percent slopes 34
NrA—Norfolk loamy sand, 0 to 2 percent slopes 34
NrB—Norfolk loamy sand, 2 to 6 percent slopes 35
OcA—Ocilla fine sand, 0 to 2 percent slopes 35
Oe—Osier loamy sand 36
Oy—Osier-Pickney complex, frequently flooded 37
Pa—Pantego loam, ponded 37
Pe—Pelham loamy sand 38
Pk—Pickney loamy fine sand, ponded 39
Pm—Plummer loamy fine sand 39
Pu—Pungo muck, ponded 40
Ra—Rains fine sandy loam 40
Re—Rembert sandy loam, ponded 41
Ru—Rutlege loamy fine sand, ponded 41
Se—Seagate sand 43
Tc—Tawcaw-Chastain complex, frequently flooded 43
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Foreword

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

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

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

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

Mark W. Berkland
State Conservationist
Natural Resources Conservation Service

Soil Survey of Hampton County, South Carolina

By Robert T. Eppinette, Natural Resources Conservation Service

Soils surveyed by Douglas E. Cabe, Edward H. Earles, Robert T. Eppinette, Mark A. Mann, and Cleveland J. Mitchell, Natural Resources Conservation Service, and Warren M. Stuck and Jack Brown, South Carolina Land Resources Conservation Commission

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the South Carolina Agricultural Experiment Station and the South Carolina Land Resources Conservation Commission

HAMPTON COUNTY is in the southern part of South Carolina (fig. 1). It has an area of 360,000 acres, or about 562 square miles. It has a population of approximately 19,300. Hampton, the county seat, has a population of about 3,300. The town of Estill has a population of about 2,400 *(1)*.

The county is in the Atlantic Coast Flatwoods major land resource area. The soils generally are nearly level, but in a few small areas, mainly along the major rivers and swamps, they are gently sloping. The elevation ranges from 10 feet above sea level near Yemassee to about 150 feet near Estill.

The county is bounded on the north by Allendale County, on the east by Colleton County, and on the south by Beaufort and Jasper Counties. It is separated from Georgia on the west by the Savannah River.

This soil survey updates the survey of Hampton County published in 1917 *(6)*. It provides more information about the soils and has larger maps, which show the soils in greater detail.

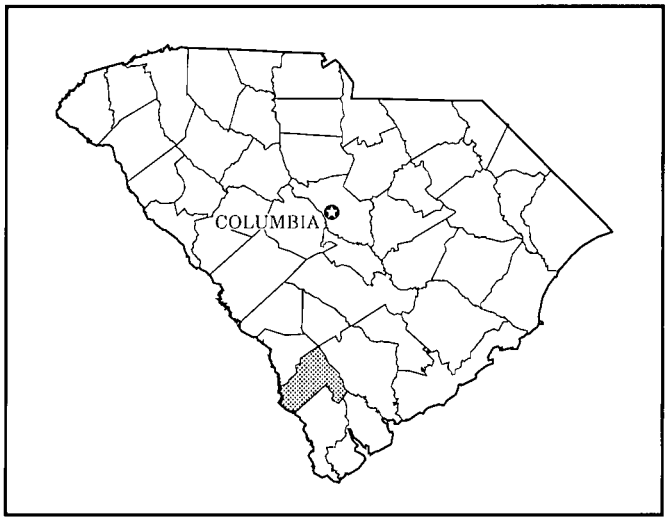

Figure 1.—Location of Hampton County in South Carolina.

General Nature of the County

This section provides general information about Hampton County. It describes the early history, agriculture, and climate of the county.

Early History

The area now known as Hampton County was first inhabited by the Yemassees, the Cherokees, and the Huspahs and by 24 other tribes of Indians. Reminders of this past are in such names as Coosawhatchie,

Salkehatchie, Tullifinny, and Caw Caw.

The survey area was first settled by the English in 1670 as part of the Beaufort District. This district was divided into three parishes. Hampton County was in Prince William Parish.

During the Civil War, the county was in the direct path of General Sherman and his troops in their march from Savannah to Columbia. Most of the county lay in ruin after the war.

In 1877, a large group of petitioners living in the Prince William Parish requested that the South Carolina General Assembly divide the Beaufort District into two districts. One of these districts became Hampton County. The county was named in honor of General Wade Hampton for his contributions to South Carolina during the Civil War and the Reconstruction.

In 1912, the county lost some of its territory when Jasper County was formed from parts of Hampton and Beaufort Counties *(5)*.

Agriculture

Agriculture formerly was and currently is of major importance in Hampton County. In the early 1900's, cotton, corn, oats, rice, sugarcane, and sweet potatoes were the main crops. Cowpeas were grown to provide forage for farm animals and to add nitrogen and organic matter to the soils *(6)*. Presently, the main cash crop is soybeans, which are grown on about 45,000 acres each year. Other cash crops include cotton, corn, small grain, peanuts, and watermelons.

Climate

Prepared by John C. Purvis, state climatologist, Water Resources Commission, Columbia, South Carolina.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Hampton, South Carolina, in the period 1951 to 1983. 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 49.7 degrees F and the average daily minimum temperature is 37.2 degrees. The lowest temperature on record, which occurred at Hampton on January 21, 1985, is +1 degree. In summer, the average temperature is 79.6 degrees and the average daily maximum temperature is 91.0 degrees. The highest recorded temperature, which occurred at Hampton on July 13, 1980, 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 47.95 inches. Of this, 28.65 inches, or about 60 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 21 inches. The heaviest recorded 1-day rainfall was 6.75 inches at Hampton on September 1, 1969. Thunderstorms occur on about 56 days each year.

The average seasonal snowfall is 0.9 inch. The greatest snow depth at any one time during the period of record was 11 inches, in February 1973. Days when at least 1 inch of snow is on the ground are rare.

The average relative humidity in midafternoon is about 53 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 67 percent of the time possible in summer and 59 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 8 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 in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

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

of soil at a specific location on the landscape.

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

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

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

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

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

Map Unit Composition

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

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

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data.

The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation is needed to plan for intensive uses in small areas.

General Soil Map Units

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

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

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or 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.

Soil Descriptions

Soils on the Atlantic Coast Flatwoods

These soils are somewhat excessively drained to poorly drained and are nearly level to strongly sloping. They are on upland terraces dissected by narrow drainageways.

1. Autryville-Blanton-Bonneau

Somewhat excessively drained and well drained soils that have a moderately thick or thick, sandy surface layer and subsurface layer and a loamy subsoil

This map unit consists of nearly level to strongly sloping soils on sandy ridges and side slopes on upland terraces. Many small drainageways and a few major swamps are in areas of the unit. Small, irregularly shaped or oval depressions are in scattered areas. Most areas have been cleared of trees and are used for crops, pasture, or plantation pine. The natural vegetation in the drainageways and depressions is mixed pine and hardwoods and a thick understory of greenbrier, blackberry, gallberry, and cane.

This map unit makes up about 25 percent of the county. It is about 26 percent Autryville soils, 20 percent Blanton soils, 19 percent Bonneau soils, and 35 percent soils of minor extent.

The nearly level and gently sloping Autryville soils are on sandy ridges and side slopes. They are well drained. They have a brownish, sandy surface layer and subsurface layer 20 to 40 inches thick over a yellowish, loamy subsoil. The subsoil is mottled in the lower part.

The nearly level to strongly sloping Blanton soils are on sandy ridges and side slopes. They are somewhat excessively drained. They have a brownish, sandy surface layer and subsurface layer more than 40 inches thick over a yellowish, loamy subsoil. The subsoil is mottled in the lower part.

The nearly level and gently sloping Bonneau soils are on sandy ridges. They are well drained. They have a brownish, sandy surface layer and subsurface layer 20 to 40 inches thick over a yellowish, loamy subsoil. The subsoil is mottled in the lower part.

The minor soils in this map unit include the moderately well drained Chipley soils on sandy upland terraces, the somewhat poorly drained or moderately well drained Ocilla soils on the lower ridges and side slopes, and the poorly drained Pelham and Rains soils in depressions and drainageways.

Most areas of this map unit are used as cropland or pasture. Some small areas are used for residential or commercial development. The rest of the unit, including areas in depressions and drainageways, is used as woodland.

The major soils are poorly suited to row crops. The main management concerns are droughtiness and a low nutrient-holding capacity. Irrigation and split applications of fertilizer minimize these limitations. Wetness is a limitation on the lower side slopes and in depressions and drainageways. It can be reduced by installing surface and subsurface drainage systems. Cover crops and minimum tillage improve the available water capacity and reduce the hazard of wind erosion.

The major soils are suited to pasture. The main management concerns are the droughtiness, the low nutrient-holding capacity, and the wetness on the lower

side slopes and in depressions and drainageways. A proper grazing system, weed control, and applications of fertilizer improve the quality of the forage.

The major soils are suited to woodland. The main management concerns are limitations affecting the use of equipment and seedling survival. The soils on the lower side slopes and in drainageways and depressions are limited by wetness. Using wide, low-pressure tires can improve the mobility of equipment. Planting seedlings in a shallow furrow increases the survival rate during dry periods. The seedling survival rate also can be increased by planting on raised beds in wet areas.

The major soils are well suited or suited to building site development. The main management concern is wetness on the lower side slopes and along drainageways. Surface and subsurface drainage systems can be installed to reduce the wetness. Increasing the size of the drain field can minimize the limitations affecting septic tank absorption fields.

2. Ocilla-Rains-Bonneau

Well drained to somewhat poorly drained soils that have a moderately thick, sandy surface layer and subsurface layer and a loamy subsoil and poorly drained soils that have a loamy surface layer and subsoil

This map unit consists of nearly level and gently sloping soils on low, sandy ridges and in narrow drainageways on upland terraces. Many irregularly shaped depressions are in scattered areas. Some areas are used as cropland or pasture or have been clearcut and planted to pine. The natural vegetation in the drainageways and depressions is mixed pine and hardwoods and a thick understory of greenbrier, blackberry, gallberry, blueberry, and cane.

This map unit makes up about 14 percent of the county. It is about 24 percent Ocilla soils, 18 percent Rains soils, 18 percent Bonneau soils, and 40 percent soils of minor extent.

The nearly level Ocilla soils are on low, sandy ridges and side slopes. They are somewhat poorly drained or moderately well drained. They have a sandy surface layer and subsurface layer 20 to 40 inches thick over a loamy subsoil. The surface layer is grayish and brownish, the subsurface layer is brownish, and the subsoil is brownish, yellowish, and grayish.

The nearly level Rains soils are in drainageways and depressions. They are poorly drained. They have a grayish, loamy surface layer, subsurface layer, and subsoil.

The nearly level and gently sloping Bonneau soils are on sandy ridges. They are well drained. They have a brownish, sandy surface layer and subsurface layer 20 to 40 inches thick over a yellowish, loamy subsoil. The subsoil is mottled in the lower part.

The minor soils in this map unit include the somewhat excessively drained Blanton soils on sandy ridges, the moderately well drained Goldsboro soils on nearly level upland terraces, the somewhat poorly drained Seagate soils on side slopes, and the very poorly drained Pantego soils in drainageways and depressions.

Most areas of this map unit are used as woodland. Large areas have been clearcut and planted to pine. Some areas are used for row crops or pasture. Some small areas are used for residential development.

The major soils are generally suited to row crops. The soils on sandy ridges are droughty during dry periods and have a low nutrient-holding capacity. Minimum tillage and cover crops improve the water- and nutrient-holding capacity of the soils. The soils on the lower ridges, along drainageways, and in depressions are limited by wetness, which can be reduced by installing surface and subsurface drainage systems.

The major soils are suited to pasture. The main management concerns are wetness in the soils on the lower ridges, along drainageways, and in depressions and the droughtiness and low nutrient-holding capacity in the soils on sandy ridges. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted grazing during wet periods help to keep the pasture in good condition.

The major soils are well suited or suited to woodland. The main management concerns are limitations affecting the use of equipment, seedling survival, and plant competition. The soils on the lower side slopes and in drainageways are limited by seasonal wetness. The seedling survival rate can be increased by planting on raised beds. Using wide, low-pressure tires can improve the mobility of equipment and minimize compaction and rutting. The equipment limitation also can be minimized by harvesting only during dry periods. The soils on sandy ridges are droughty during dry periods. Planting seedlings in a shallow furrow increases the survival rate during dry periods. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

The major soils are suited or poorly suited to building site development. The main management concern is wetness. Installing drainage systems, adding fill material, and pumping sewage effluent to suitable sites minimize this limitation. Increasing the size of the drain field can minimize the limitations affecting septic tank absorption fields in areas of the soils on sandy ridges.

3. Bonneau-Blanton-Rains

Somewhat excessively drained and well drained soils that have a moderately thick or thick, sandy surface layer and subsurface layer and a loamy subsoil and poorly drained soils that have a loamy surface layer and subsoil

This map unit consists of nearly level and gently sloping soils on sandy ridges on upland terraces dissected by narrow drainageways. Many small, oval or irregularly shaped depressions are in scattered areas. Many areas have been cleared of trees and are used as cropland or replanted to pine. The natural vegetation in the drainageways and depressions is mixed pine and hardwoods and a thick understory of greenbrier, blackberry, and cane.

This map unit makes up about 4 percent of the county. It is about 26 percent Bonneau soils, 25 percent Blanton soils, 11 percent Rains soils, and 38 percent soils of minor extent.

The nearly level and gently sloping Bonneau soils are on sandy ridges. They are well drained. They have a brownish, sandy surface layer and subsurface layer 20 to 40 inches thick over a yellowish, loamy subsoil. The subsoil is mottled in the lower part.

The nearly level to strongly sloping Blanton soils are on sandy ridges and side slopes. They are somewhat excessively drained. They have a brownish, sandy surface layer and subsurface layer more than 40 inches thick over a yellowish, loamy subsoil. The subsoil is mottled in the lower part.

The nearly level Rains soils are in drainageways and depressions. They are poorly drained. They have a grayish, loamy surface layer, subsurface layer, and subsoil.

The minor soils in this map unit include the well drained Autryville, Noboco, and Uchee soils on ridges and side slopes; the moderately well drained Goldsboro soils on nearly level terraces; the somewhat poorly drained Ocilla soils on low ridges; and the very poorly drained Pantego soils in drainageways and depressions.

Most areas of this map unit are used as woodland. Large areas have been clearcut and planted to pine. Some areas are used for row crops or pasture. Some small areas are used for residential development.

The major soils are well suited, suited, or poorly suited to row crops. The main management concerns are droughtiness and a low nutrient-holding capacity in the soils on sandy ridges and side slopes. Irrigation and split applications of fertilizer minimize these limitations. Cover crops and minimum tillage improve the available water capacity and reduce the hazard of wind erosion. The soils on the lower ridges, along drainageways, and in depressions are limited by wetness, which can be reduced by installing surface and subsurface drainage systems.

The major soils are suited to pasture. The main management concerns are the droughtiness and low nutrient-holding capacity in the soils on sandy ridges and side slopes and wetness in the soils in depressions and along drainageways. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted grazing during wet periods help to keep the pasture in good condition.

The major soils are suited to woodland. The main management concerns are limitations affecting the use of equipment and seedling survival. The soils on sandy ridges have a low available water capacity and become droughty during dry periods. Planting seedlings in a shallow furrow increases the survival rate during dry periods. Using wide, low-pressure tires can improve the mobility of equipment and minimize compaction and rutting. The seedling survival rate on the soils on the lower side slopes and in drainageways and depressions can be increased by planting on raised beds.

The major soils are suited or poorly suited to building site development. The main management concern is wetness. Installing drainage systems, adding fill material, and pumping sewage effluent to suitable sites minimize this limitation. Increasing the size of the drain field can minimize the limitations affecting septic tank absorption fields in areas of the soils on sandy ridges.

4. Rains-Norfolk-Goldsboro

Well drained, moderately well drained, and poorly drained soils that have a loamy or sandy surface layer and a loamy subsoil

This map unit consists of nearly level and gently sloping soils on upland terraces dissected by poorly defined, narrow drainageways. Many small, oval or irregularly shaped depressions are in scattered areas. Nearly all areas of the well drained and moderately well drained soils have been cleared of trees and are used for crops, pasture, or plantation pine. The soils in depressions and drainageways support mixed pine and hardwoods and a thick understory of blackberry, pepperbush, baybush, cane, and greenbrier.

This map unit makes up about 9 percent of the county. It is about 26 percent Rains soils, 24 percent Norfolk soils, 20 percent Goldsboro soils, and 30 percent soils of minor extent.

The nearly level Rains soils are in drainageways and depressions. They are poorly drained. They have a grayish, loamy surface layer, subsurface layer, and subsoil.

The nearly level and gently sloping Norfolk soils are on upland terraces. They are well drained. They have a brownish, sandy surface layer and subsurface layer and a yellowish and brownish, loamy subsoil. The subsoil is mottled in the lower part.

The nearly level Goldsboro soils are on upland terraces. They are moderately well drained. They have a grayish, sandy surface layer; a brownish, sandy subsurface layer; and a yellowish and grayish, mottled, loamy subsoil.

The minor soils in this map unit include the somewhat excessively drained Blanton, well drained Bonneau and Noboco, and somewhat poorly drained Lynchburg soils on upland terraces and the somewhat poorly drained or moderately well drained Ocilla soils on low ridges and side slopes.

Most areas of this map unit are used as cropland. Some small areas are used for woodland, pasture, catfish ponds, or residential or commercial development.

The major soils are well suited to row crops. The main management concern is wetness. Surface and subsurface drainage systems can reduce the wetness. Erosion is a moderate hazard in the gently sloping areas. Conservation tillage minimizes erosion and compaction and conserves soil moisture.

The major soils are well suited to pasture. The main management concern is wetness. A surface drainage system can reduce the wetness. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted grazing during dry or wet periods help to keep the pasture in good condition.

The major soils are well suited to woodland. The main management concerns are limitations affecting the use of equipment and plant competition, especially on the soils in depressions and along drainageways. These limitations are caused by wetness. Using wide, low-pressure tires can improve the mobility of equipment and minimize compaction and rutting. The seedling survival rate on the soils on the lower side slopes and in drainageways and depressions can be increased by planting on raised beds. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

The major soils are well suited, suited, or poorly suited to building site development. Few limitations affect development of the soils on upland terraces. Increasing the size of the drain field can minimize the limitations affecting septic tank absorption fields. The wetness of the soils in depressions and along drainageways is a severe limitation. Installing drainage systems, adding fill material, and pumping sewage effluent to suitable sites minimize this limitation.

5. Norfolk-Rains-Bonneau

Well drained and poorly drained soils that have a sandy or loamy surface layer and a loamy subsoil and well drained soils that have a moderately thick, sandy surface layer and a loamy subsoil

This map unit consists of nearly level and gently sloping soils on upland terraces dissected by shallow drainageways. The terraces have many small, oval depressions. Nearly all areas of the well drained soils have been cleared of trees and are used for crops, pasture, or plantation pine. The depressions and drainageways support pine and hardwoods and a thick understory of blackberry, pepperbush, baybush, greenbrier, cane, and waxmyrtle.

This map unit makes up about 10 percent of the county. It is about 31 percent Norfolk soils, 22 percent Rains soils, 9 percent Bonneau soils, and 38 percent soils of minor extent.

The nearly level and gently sloping Norfolk soils are on upland terraces. They are well drained. They have a brownish, sandy surface layer and subsurface layer and a yellowish and brownish, loamy subsoil. The subsoil is mottled in the lower part.

The nearly level Rains soils are in depressions and along drainageways. They are poorly drained. They have a grayish, loamy surface layer, subsurface layer, and subsoil.

The nearly level and gently sloping Bonneau soils are on sandy ridges. They are well drained. They have a brownish, sandy surface layer and subsurface layer 20 to 40 inches thick over a yellowish, loamy subsoil. The subsoil is mottled in the lower part.

The minor soils in this map unit include the well drained Emporia soils on side slopes adjacent to drainageways, the well drained Noboco and moderately well drained Goldsboro soils on nearly level upland terraces, and the poorly drained Coxville soils in depressions and along drainageways.

Most areas of this map unit are used as cropland. Some small areas are used for pasture or plantation pine. The rest of the unit, mostly in depressions and along drainageways, is used as woodland.

The major soils are well suited to row crops. The main management concern is wetness in the soils in depressions and drainageways. Surface and subsurface drainage systems can reduce the wetness. Erosion is a moderate hazard in the gently sloping areas. Conservation tillage minimizes erosion and compaction and conserves soil moisture. The soils on sandy ridges are limited by droughtiness and a low nutrient-holding capacity. Irrigation and split applications of fertilizer minimize these limitations.

The major soils are well suited to pasture. The main

management concerns are wetness in the soils in depressions and drainageways and the droughtiness and low nutrient-holding capacity in the soils on sandy ridges. A surface drainage system can reduce the wetness. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted grazing during dry or wet periods help to keep the pasture in good condition.

The major soils are well suited to woodland. The soils in drainageways and depressions are limited by wetness. Using wide, low-pressure tires can improve the mobility of equipment and minimize compaction and rutting. The seedling survival rate on the soils on the lower side slopes and in drainageways and depressions can be increased by planting on raised beds. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings. The soils on sandy ridges have a low available water capacity and become droughty during dry periods. Planting seedlings in a shallow furrow increases the survival rate during dry periods. Using wide, low-pressure tires can improve the mobility of equipment on the sandy soils.

The major soils are well suited, suited, or poorly suited to building site development. Few limitations affect development of the soils on upland terraces and sandy ridges. The wetness of the soils in depressions and along drainageways is a severe limitation. Installing drainage systems, adding fill material, enlarging septic tank absorption fields, and pumping sewage effluent to suitable sites minimize this limitation.

6. Goldsboro-Lynchburg-Rains

Moderately well drained to poorly drained soils that have a sandy or loamy surface layer and a loamy subsoil

This map unit consists of nearly level soils on upland terraces dissected by poorly defined drainageways. Many irregularly shaped depressions are in scattered areas. Most areas of the moderately well drained soils have been cleared of trees and are used for row crops or planted pine. The drainageways and depressions support natural stands of mixed pine and hardwoods and a thick understory of greenbrier, waxmyrtle, pepperbush, gallberry, cane, and blackberry.

This map unit makes up about 22 percent of the county. It is about 32 percent Goldsboro soils, 23 percent Lynchburg soils, 20 percent Rains soils, and 25 percent soils of minor extent.

The nearly level Goldsboro soils are on upland terraces. They are moderately well drained. They have a grayish, sandy surface layer; a brownish, sandy subsurface layer; and a yellowish and grayish, mottled, loamy subsoil.

The nearly level Lynchburg soils are on upland terraces. They are somewhat poorly drained. They have a grayish, sandy surface layer; a brownish, sandy subsurface layer; and a grayish, loamy subsoil.

The nearly level Rains soils are in depressions and drainageways on upland terraces. They are poorly drained. They have a grayish, loamy surface layer, subsurface layer, and subsoil.

The minor soils in this map unit include the well drained Bonneau and Noboco soils on ridges and side slopes, the somewhat poorly drained or moderately well drained Ocilla soils on low ridges and side slopes, the poorly drained Coxville soils in depressions and along drainageways, and the very poorly drained Pantego soils in depressions.

Most areas of this map unit are used as woodland. Many areas have been cleared of trees and are used as cropland. A few small areas are used for residential or commercial development.

The major soils are well suited to row crops. The main management concern is wetness. Surface and subsurface drainage systems can reduce the wetness. Conservation tillage minimizes compaction and surface crusting and improves tilth and soil structure.

The major soils are well suited to pasture. The main management concern is wetness. A surface drainage system can reduce the wetness. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted grazing during wet periods can help to keep the pasture in good condition.

The major soils are well suited to woodland. The main management concerns are limitations affecting the use of equipment and plant competition. These limitations are caused by wetness. Using wide, low-pressure tires can improve the mobility of equipment and minimize compaction and rutting. The seedling survival rate can be increased by planting on raised beds. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

The major soils are suited or poorly suited to building site development. The moderately well drained soils on terraces have fewer limitations than the poorly drained soils. The wetness of the soils in depressions and along drainageways is a severe limitation. Installing drainage systems, adding fill material, enlarging septic tank absorption fields, and pumping sewage effluent to suitable sites minimize this limitation.

7. Eulonia-Argent-Wahee

Moderately well drained to poorly drained soils that have a loamy surface layer and a clayey subsoil

This map unit consists of nearly level and gently

sloping soils on low stream terraces parallel to drainageways and the major swamps. Few areas have been cleared of trees. The natural vegetation in the drainageways is mixed pine and hardwoods and a thick understory of greenbrier, blackberry, and cane.

This map unit makes up about 7 percent of the county. It is about 43 percent Eulonia soils, 28 percent Argent soils, 15 percent Wahee soils, and 14 percent soils of minor extent.

The nearly level and gently sloping Eulonia soils are in the higher areas on the low stream terraces. They are moderately well drained. They have a grayish, loamy surface layer and subsurface layer and a yellowish, brownish, and grayish, clayey subsoil.

The nearly level Argent soils are in depressions and drainageways. They are poorly drained. They have a grayish, loamy surface layer and a grayish, clayey subsoil.

The nearly level Wahee soils are on low terraces. They are somewhat poorly drained. They have a brownish, loamy surface layer; an olive, loamy subsurface layer; and a grayish and yellowish, clayey subsoil.

The minor soils in this map unit include the well drained Alaga soils on sandy ridges, the well drained Cahaba and Uchee soils on ridges and side slopes, the somewhat poorly drained Tawcaw soils on the lower ridges on flood plains, the poorly drained Chastain soils in drainageways and depressions on flood plains, and the very poorly drained Brookman soils in depressions and drainageways.

Most areas of this map unit are used as woodland. Large areas have been clearcut and planted to loblolly pine or used as wildlife habitat.

The soils in the higher areas are suited to row crops. The main management concerns are wetness, restricted permeability, and a moderate hazard of erosion on the gently sloping soils. A surface drainage system reduces the wetness. Conservation tillage minimizes compaction, erosion, and surface crusting, improves natural fertility, and helps to maintain tilth. The poorly drained soils in depressions and along drainageways are unsuited to row crops because of ponding and wetness.

The soils in the higher areas are well suited or suited to pasture. The main management concerns are wetness and restricted permeability. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. The poorly drained soils in depressions and along drainageways are unsuited to pasture because of ponding and wetness.

The major soils are suited to woodland. The main management concerns are limitations affecting the use of equipment, seedling survival, and plant competition. These limitations are caused by wetness. Using wide, low-pressure tires can improve the mobility of equipment and minimize compaction and rutting. The seedling survival rate can be increased by planting on raised beds. Chopping and harrowing can minimize plant competition and increase the seedling survival rate. Seedlings can be established by natural regeneration on the soils in depressions and drainageways,

The major soils generally are poorly suited to building site development. The main management concerns are wetness and a slowly permeable subsoil. Effluent can be pumped to a better suited site, or specially designed septic systems can be installed. The poorly drained soils in depressions and along drainageways are unsuited to building site development because of ponding and wetness.

Soils on the Major Flood Plains

These soils are somewhat poorly drained to very poorly drained, are frequently flooded or ponded, and are nearly level. They are in areas adjacent to the Savannah, Combahee, Coosawhatchie, and Salkehatchie Rivers.

8. Tawcaw-Chastain

Somewhat poorly drained and poorly drained soils that have a clayey surface layer and a clayey and loamy subsoil

This map unit consists of frequently flooded soils on the flood plain along the Savannah River. The landscape typically has little relief. The soils are slowly permeable and have a water table at or near the surface for much of the year. The natural vegetation is bottom-land hardwoods and baldcypress.

This map unit makes up about 4 percent of the county. It is about 50 percent Tawcaw soils, 40 percent Chastain soils, and 10 percent soils of minor extent.

The nearly level Tawcaw soils are on narrow, low ridges on the flood plain. They are somewhat poorly drained. They have a reddish, clayey surface layer and a brownish and grayish, clayey and loamy subsoil.

The nearly level Chastain soils are in drainageways and depressions. They are poorly drained. They have a brownish, clayey surface layer and a grayish, clayey and loamy subsoil.

The minor soils in this unit include the well drained Alaga soils on small sandy ridges, the somewhat excessively drained Blanton soils on sandy upland terraces and side slopes at the margin of the unit, and the poorly drained Argent soils on the edges of the flood plain.

Most areas of this map unit are used as woodland. A few small areas are managed for wildlife.

The major soils are unsuited to row crops, pasture, and building site development because of frequent flooding and wetness.

The major soils are well suited to bottom-land hardwoods. The main management concerns are limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. These limitations are caused by wetness. Using wide, low-pressure tires can improve the mobility of equipment and minimize compaction and rutting. The equipment limitation also can be minimized by harvesting only during dry periods. Seedlings can be established by natural regeneration. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

9. Osier-Pickney

Poorly drained or very poorly drained soils that are subject to flooding and ponding and are sandy throughout

This map unit consists of nearly level soils on the flood plain of Whippy Swamp; on the flood plain along the Salkehatchie River, along the northeast border of the county; and on the flood plain along the Coosawhatchie River, near Allendale County. The landscape has little relief. The soils are frequently flooded. They are subject to ponding and have a water table at or near the surface for much of the year. The natural vegetation is bottom-land hardwoods and baldcypress.

This map unit makes up about 1 percent of the county. It is about 50 percent Osier soils, 30 percent Pickney soils, and 20 percent soils of minor extent.

The nearly level Osier soils are near streams and in many areas in former streambeds. They are poorly drained. They have a grayish, sandy surface layer and a grayish and brownish, sandy substratum.

The nearly level Pickney soils are along the edges of the flood plains. They are very poorly drained. They have a black, sandy surface layer and a grayish, sandy substratum.

The minor soils in this map unit include the somewhat excessively drained Blanton and well drained Bonneau soils on side slopes at the margin of the unit.

Nearly all areas of this map unit are forested, mainly with bottom-land hardwoods, such as red maple, water tupelo, sweetgum, holly, and water oak.

The major soils are unsuited to row crops, pasture, and building site development, mainly because of the frequent flooding, the ponding, and the wetness. Because of the low elevation and the nearly level topography, no suitable drainage outlets are available.

The major soils are well suited to water-tolerant trees. Although pine grows well, it cannot be easily established because of the wetness, the ponding, and the frequent flooding. Because replanting is extremely difficult, management of natural stands is important. Seedlings can be established by natural regeneration. Using wide, low-pressure tires can improve the mobility of equipment and minimize compaction and rutting. The equipment limitation also can be minimized by harvesting only during dry periods. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

10. Grifton-Osier

Poorly drained soils that are frequently flooded and have a loamy surface layer, a sandy subsurface layer, and a loamy subsoil or are sandy throughout

This map unit consists of nearly level soils on flood plains along the Salkehatchie, Coosawhatchie, and Combahee Rivers. The soils are frequently flooded. The landscape has little relief. The dominant plant species include bottom-land hardwoods, such as red maple, water tupelo, sweetgum, holly, and water oak.

This map unit makes up about 4 percent of the county. It is about 55 percent Grifton soils, 25 percent Osier soils, and 20 percent soils of minor extent.

The nearly level Grifton soils are on the edges of the flood plains. They are poorly drained. They have a brownish, loamy surface layer; a grayish, sandy subsurface layer; and a grayish, loamy subsoil.

The nearly level Osier soils are near streams and in many areas in former streambeds. They are poorly drained. They have a grayish, sandy surface layer and a grayish and brownish, sandy substratum.

The minor soils in this map unit include the somewhat excessively drained Blanton and well drained Bonneau soils on side slopes at the margin of the unit.

Nearly all areas of this map unit support water-tolerant trees.

The major soils are unsuited to row crops, pasture, and building site development, mainly because of the frequent flooding and the wetness. Because of the low elevation and the nearly level topography, no suitable drainage outlets are available.

The major soils are well suited to water-tolerant trees. Although pine grows well, it cannot be easily established because of the wetness and the frequent

flooding. Because replanting is extremely difficult, management of natural stands is important. Seedlings can be established by natural regeneration. Using wide, low-pressure tires can improve the mobility of equipment and minimize compaction and rutting. The equipment limitation also can be minimized by harvesting only during dry periods. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

Broad Land Use Considerations

The soils in Hampton County vary widely in their suitability for major land uses. Approximately 25 percent of the land in the county is used for cultivated crops, mainly soybeans, corn, and small grain. This cropland is in scattered areas throughout the county. It is concentrated to some extent in general soil map units 4, 5, and 6, which are suited or well suited to crops. The soils in map units 1, 2, and 3 are dominantly sandy and require more land use treatment than the soils in other map units. The soils in map units 8, 9, and 10 are in very low areas and are frequently flooded or ponded. They are poorly suited or unsuited to crops. They require intensive land use treatment.

Approximately 2 percent of the land in the county is pasture. All of the map units, except for units 8, 9, and 10, are well suited, suited, or poorly suited to pasture. A seasonal high water table, mild temperatures, and a moderately high amount of annual rainfall improve the suitability for pasture.

About 70 percent of the land in the county is woodland. Map units 1 to 7 are suited or well suited to pine. In areas of map units 1, 2, and 3, droughtiness affects the growth of pine, but satisfactory or good yields are common. Map units 8, 9, and 10, which are flooded or ponded for long periods, are suited to water-tolerant hardwoods.

Less than 3 percent of the county is urban or built-up land. Although most of the soils in the county are severely limited as sites for urban uses, small areas in all of the map units, except possibly for units 8, 9, and 10, can be developed for those uses. The high water table in most of the soils in the county is the main limitation affecting urban development. The soils in map units 8, 9, and 10 are limited by frequent flooding or ponding.

The potential for wildlife habitat is generally high throughout the county. The soils in map units 1 to 7 generally are suited to woodland wildlife habitat. The poorly drained, frequently flooded or ponded soils in map units 8, 9, and 10 are suited to wetland wildlife habitat.

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 the heading "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 substratum, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the substratum. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Bonneau fine sand, 0 to 2 percent slopes, is a phase of the Bonneau series.

Some map units are made up of two or more major soils. These map units are called soil complexes. A *soil complex* consists of two or more soils, or one or more soils and a miscellaneous area, in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Grifton-Osier complex, frequently flooded, is an example.

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.

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.

AgB—Alaga sand, moderately wet, 0 to 6 percent slopes. This nearly level and gently sloping soil is on sandy upland terraces adjacent to the larger swamps and flood plains. It is well drained. Individual areas commonly are about 40 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 10 inches—brown sand

Substratum:
10 to 32 inches—strong brown sand
32 to 46 inches—reddish yellow sand that has very pale brown mottles
46 to 66 inches—reddish yellow sand that has brownish yellow and white mottles
66 to 77 inches—white sand that has very pale brown mottles

Included with this soil in mapping are small areas of Autryville, Blanton, Foxworth, Osier, and Rains soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Rapid
Available water capacity: Low
Seasonal high water table: At a depth of 4 to 6 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as cropland. A few small areas are used as pasture or woodland.

This soil is poorly suited to row crops and small grain. Droughtiness and a low nutrient-holding capacity are the major management concerns. Minimum tillage and cover crops can reduce the droughtiness, improve the nutrient-holding capacity, and minimize the damage to plants caused by wind erosion. Fertilizers are more efficiently managed when applied at intervals rather than in single applications.

This soil is suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The droughtiness and the low nutrient-holding capacity are the major management concerns. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted grazing during dry periods improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine and longleaf pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods.

This soil is suited to building site development. It is moderately limited as a site for septic tank absorption fields because of the wetness. Adding suitable fill material or increasing the size of the absorption field can minimize this limitation. The soil has slight limitations as a site for dwellings without basements. It is moderately limited as a site for lawns and landscaping because of the droughtiness and the low nutrient-holding capacity. Frequent irrigation during dry periods and split applications of fertilizer help to keep lawns and shrubbery in good condition.

ApB—Alpin sand, 0 to 6 percent slopes. This nearly level and gently sloping soil is on sandy upland terraces adjacent to flood plains. It is excessively drained. Individual areas are irregular in shape and commonly are about 10 to 200 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 7 inches—dark grayish brown sand

Subsurface layer:
7 to 33 inches—yellow and very pale brown sand that has strong brown mottles
33 to 60 inches—strong brown sand that has very pale brown mottles and pockets of strong brown loamy sand

Subsoil:
60 to 80 inches—white sand that has lamellae of strong brown loamy sand

Included with this soil in mapping are small areas of Blanton, Bonneau, Chipley, Foxworth, Lakeland, and Osier soils. Also included are a few small areas of soils that have slopes of more than 6 percent. Included soils make up about 10 percent of the map unit.

Major soil properties—
Permeability: Rapid or moderately rapid
Available water capacity: Low
Seasonal high water table: At a depth of more than 6 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. Some small areas are used for cropland, pasture, or urban development.

This soil is poorly suited to row crops and small grain. The major management concerns are droughtiness and a low nutrient-holding capacity. Fertilizers are more efficiently managed when applied at intervals rather than in single applications. Minimizing tillage, maintaining crop residue on or near the surface, and planting cover crops increase the water- and nutrient-holding capacity and reduce the hazard of wind erosion.

This soil is suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The major management concerns are the droughtiness and the low nutrient-holding capacity. Proper stocking rates, pasture rotation, and restricted grazing during dry periods improve the quality of the forage.

This soil is suited to woodland. Suitable trees include slash pine and loblolly pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods.

This soil is well suited to building site development. It has slight limitations as a site for septic tank absorption fields and dwellings without basements. The soil is severely limited as a site for lawns and landscaping because of the droughtiness. Frequent irrigation is needed during dry periods to ensure the survival of lawn grasses and shrubs.

Ar—Argent fine sandy loam, ponded. This nearly level soil is in depressions and drainageways on low stream terraces. It is poorly drained. Individual areas commonly are elongated or irregularly shaped and are about 50 to 200 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 5 inches—gray fine sandy loam

Subsoil:
5 to 18 inches—gray clay that has yellowish brown and yellowish red mottles
18 to 59 inches—gray and light brownish gray clay that has brownish yellow and strong brown mottles
59 to 65 inches—light gray clay that has yellowish brown mottles

Included with this soil in mapping are small areas of Brookman, Chastain, Eulonia, Grifton, and Wahee soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Slow
Available water capacity: Moderate or high
Seasonal high water table: 1 foot above to 1 foot below the surface
Hazard of erosion: Slight
Shrink-swell potential: Moderate

Most areas are used as woodland. A few small areas are used for wildlife food plots.

This soil is unsuited to row crops, small grain, and pasture because of the wetness, the slow permeability, and the ponding. Overcoming these limitations is costly and difficult.

This soil is suited to water-tolerant trees, including red maple, sweetgum, American sycamore, and water oak. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. These limitations are caused by the wetness. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Seedlings can be established by natural regeneration.

This soil is generally unsuited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness, the slow permeability, and the ponding. Overcoming these limitations is costly and difficult.

AtA—Autryville sand, 0 to 2 percent slopes. This nearly level soil is on sandy upland terraces. It is well drained. Individual areas commonly are about 60 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 10 inches—brown sand

Upper subsurface layer:
10 to 32 inches—light yellowish brown and very pale brown sand

Upper subsoil:
32 to 47 inches—reddish yellow sandy loam

Lower subsurface layer:
47 to 54 inches—yellow sand

Lower subsoil:
54 to 62 inches—brownish yellow sandy clay loam that has yellowish brown mottles
62 to 70 inches—mottled light yellowish brown, red, strong brown, and gray sandy clay loam

Included with this soil in mapping are small areas of Blanton, Bonneau, Chipley, Foxworth, and Ocilla soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of 4 to 6 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as cropland. A few small areas are used as pasture or woodland.

This soil is poorly suited to row crops and small grain. Droughtiness and a low nutrient-holding capacity are the major management concerns. Conservation tillage conserves soil moisture, improves natural fertility, and reduces the hazard of wind erosion. Irrigation improves yields (fig. 2). Fertilizers are more efficiently managed when applied at intervals rather than in single applications.

This soil is well suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The droughtiness and the low nutrient-holding capacity are the major management concerns. Proper stocking rates, pasture rotation, and restricted grazing during dry periods help to keep the pasture in good condition. Applying fertilizer and lime and controlling weeds improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine and longleaf pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Planting seedlings in a shallow furrow can increase the survival rate during dry periods.

This soil is well suited to building site development. It is moderately limited as a site for septic tank absorption fields because of the wetness. Adding suitable fill

Figure 2.—An irrigated area of Autryville sand, 0 to 2 percent slopes.

material or increasing the size of the absorption field can minimize this limitation. The soil has slight limitations as a site for dwellings without basements. It is moderately limited as a site for lawns and landscaping because of the droughtiness and the low nutrient-holding capacity. Frequent irrigation during dry periods and split applications of fertilizer help to keep lawns and shrubbery in good condition.

AtB—Autryville sand, 2 to 6 percent slopes. This gently sloping soil is on sandy upland terraces. It is well drained. Individual areas commonly are about 20 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 10 inches—brown sand

Upper subsurface layer:
10 to 32 inches—light yellowish brown and very pale brown sand

Upper subsoil:
32 to 47 inches—reddish yellow sandy loam

Lower subsurface layer:
47 to 54 inches—yellow sand

Lower subsoil:
54 to 62 inches—brownish yellow sandy clay loam that has yellowish brown mottles
62 to 70 inches—mottled light yellowish brown, red, strong brown, and gray sandy clay loam

Included with this soil in mapping are small areas of Blanton, Bonneau, Chipley, Foxworth, and Ocilla soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of 4 to 6 feet

Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as cropland. A few small areas are used as pasture or woodland.

This soil is poorly suited to row crops and small grain. Droughtiness and a low nutrient-holding capacity are the major management concerns. Conservation tillage conserves soil moisture, improves natural fertility, and reduces the hazard of wind erosion. Irrigation improves yields. Fertilizers are more efficiently managed when applied at intervals rather than in single applications.

This soil is suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The droughtiness and the low nutrient-holding capacity are the major management concerns. Proper stocking rates, pasture rotation, and restricted grazing during dry periods help to keep the pasture in good condition. Applying fertilizer and lime and controlling weeds improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine and longleaf pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Planting seedlings in a shallow furrow can increase the survival rate during dry periods.

This soil is well suited to building site development. It is moderately limited as a site for septic tank absorption fields because of the wetness. Adding suitable fill material or increasing the size of the absorption field can minimize this limitation. The soil has slight limitations as a site for dwellings without basements. It is moderately limited as a site for lawns and landscaping because of the droughtiness and the low nutrient-holding capacity. Frequent irrigation during dry periods and split applications of fertilizer help to keep lawns and shrubbery in good condition.

BaA—Blanton fine sand, 0 to 2 percent slopes. This nearly level soil is on sandy upland terraces adjacent to drainageways and Carolina bays. It is somewhat excessively drained. Individual areas commonly are elongated and are about 10 to 150 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 7 inches—pale brown fine sand

Subsurface layer:
7 to 42 inches—very pale brown fine sand

Subsoil:
42 to 56 inches—brownish yellow sandy clay loam that has yellowish brown and red mottles
56 to 70 inches—mottled light gray, strong brown, brownish yellow, and red sandy clay loam

Included with this soil in mapping are small areas of Alpin, Autryville, Foxworth, Lakeland, and Seagate soils. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of 4 to 6 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. Some small areas are used for cropland, pasture, or urban development.

This soil is poorly suited to row crops and small grain. The major management concerns are droughtiness and a low nutrient-holding capacity. Irrigation and split applications of fertilizer minimize these limitations. Planting cover crops and minimizing tillage improve the available water capacity and reduce the hazard of wind erosion.

This soil is suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The major management concerns are the droughtiness and the low nutrient-holding capacity. A proper grazing system, weed control, and applications of fertilizer improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine and longleaf pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods.

This soil is suited to building site development. It is moderately limited as a site for septic tank absorption fields because of the wetness. Adding suitable fill material or increasing the size of the absorption field can minimize this limitation. The soil has slight limitations as a site for dwellings without basements. It is severely limited as a site for lawns and landscaping because of the droughtiness. Frequent irrigation is needed during dry periods to ensure the survival of lawn grasses and shrubs.

BaB—Blanton fine sand, 2 to 6 percent slopes. This gently sloping soil is on sandy upland terraces adjacent to drainageways and Carolina bays. It is somewhat excessively drained. Individual areas are elongated and commonly are 10 to 150 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 7 inches—pale brown fine sand

Subsurface layer:
7 to 42 inches—very pale brown fine sand

Subsoil:
42 to 56 inches—brownish yellow sandy clay loam that has yellowish brown and red mottles
56 to 70 inches—mottled light gray, strong brown, brownish yellow, and red sandy clay loam

Included with this soil in mapping are small areas of Alpin, Autryville, Foxworth, Lakeland, and Seagate soils. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of 4 to 6 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. Some small areas are used for cropland, pasture, or urban development.

This soil is poorly suited to row crops and small grain. The major management concerns are droughtiness and a low nutrient-holding capacity. Irrigation and split applications of fertilizer minimize these limitations. Planting cover crops and minimizing tillage improve the available water capacity and reduce the hazard of wind erosion.

This soil is suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The major management concerns are the droughtiness and the low nutrient-holding capacity. A proper grazing system, weed control, and applications of fertilizer improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine and longleaf pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods.

This soil is suited to building site development. It is moderately limited as a site for septic tank absorption fields because of the wetness. Adding suitable fill material or increasing the size of the absorption field can minimize this limitation. The soil has slight limitations as a site for dwellings without basements. It is severely limited as a site for lawns and landscaping because of the droughtiness. Frequent irrigation is needed during dry periods to ensure the survival of lawn grasses and shrubs.

BaC—Blanton fine sand, 6 to 10 percent slopes. This strongly sloping soil is on sandy upland terraces adjacent to drainageways and Carolina bays. It is somewhat excessively drained. Individual areas are elongated and are about 10 to 50 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 7 inches—pale brown fine sand

Subsurface layer:
7 to 42 inches—very pale brown fine sand

Subsoil:
42 to 56 inches—brownish yellow sandy clay loam that has yellowish brown and red mottles
56 to 70 inches—mottled light gray, strong brown, brownish yellow, and red sandy clay loam

Included with this soil in mapping are small areas of Alpin, Autryville, Lakeland, and Seagate soils. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of 4 to 6 feet
Hazard of erosion: Moderate
Shrink-swell potential: Low

Most areas are used as woodland. Some small areas are used for cropland, pasture, or urban development.

This soil is poorly suited to row crops and small grain. The major management concerns are droughtiness, a low nutrient-holding capacity, and the moderate hazard of erosion. Irrigation and split applications of fertilizer reduce the droughtiness and improve the nutrient-holding capacity. Planting cover crops and minimizing tillage improve the available water capacity and help to control erosion.

This soil is suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The major management concerns are the droughtiness and the low nutrient-holding capacity. A proper grazing system, weed control, and applications of fertilizer improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine and longleaf pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods.

This soil is suited to building site development. It is

moderately limited as a site for septic tank absorption fields because of the wetness and the slope. Adding suitable fill material, increasing the size of the absorption field, providing drop boxes, and installing the distribution lines on the contour can minimize these limitations. The soil is moderately limited as a site for dwellings without basements because of the slope. This limitation can be minimized by cutting and filling and by modifying the design of the building. The soil is severely limited as a site for lawns and landscaping because of the droughtiness. Frequent irrigation is needed during dry periods to ensure the survival of lawn grasses and shrubs.

BnA—Blanton fine sand, moderately wet, 0 to 2 percent slopes. This nearly level soil is on sandy upland terraces. It is moderately well drained. Individual areas are irregular in shape and commonly are 20 to 60 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 6 inches—light brownish gray fine sand

Subsurface layer:
6 to 27 inches—very pale brown fine sand that has light yellowish brown mottles
27 to 35 inches—very pale brown loamy fine sand that has light gray and brownish yellow mottles
35 to 50 inches—very pale brown fine sand that has white mottles

Subsoil:
50 to 56 inches—very pale brown fine sandy loam that has brownish yellow and light gray mottles
56 to 70 inches—light gray sandy clay loam that has brownish yellow and red mottles

Included with this soil in mapping are small areas of Autryville, Chipley, Ocilla, and Pelham soils. Also included are somewhat excessively drained soils that have a seasonal high water table below a depth of 4 feet. Included soils make up about 10 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of 2.5 to 4.0 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

About half of the acreage is used as woodland. The other half is used for cropland, pasture, or urban development.

This soil is poorly suited to row crops and small grain. The seasonal high water table and a low nutrient-holding capacity are the major management concerns. Surface and subsurface drainage systems help to control the water table. Water-control structures may be needed to maintain adequate soil moisture levels during droughty periods. If subsurface drains are installed, a filter may be needed to prevent clogging. Fertilizers are more efficiently managed when applied at intervals rather than in single applications. Crop residue management, cover crops, and minimum tillage can improve the available water capacity and reduce the hazard of wind erosion.

This soil is suited to pasture. Suitable grasses include bermudagrass and bahiagrass. The wetness and the low nutrient-holding capacity are the major management concerns. A surface drainage system can help to control the water table. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition and improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine and longleaf pine. The major management concerns are moderate limitations affecting the use of equipment, seedling survival, and plant competition. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness and a poor filtering capacity. Specially modified sewage systems may be needed. The soil has slight limitations as a site for dwellings without basements. It is severely limited as a site for lawns and landscaping because of droughtiness. Frequent irrigation is needed during dry periods to ensure the survival of lawn grasses and shrubs.

BoA—Bonneau fine sand, 0 to 2 percent slopes. This nearly level soil is on upland terraces. It is well drained. Individual areas are irregularly shaped and commonly are 10 to 40 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 9 inches—dark grayish brown fine sand

Subsurface layer:
9 to 25 inches—very pale brown fine sand

Subsoil:
25 to 46 inches—reddish yellow sandy clay loam that has yellow mottles

46 to 70 inches—mottled red, reddish brown, gray, brown, and brownish yellow sandy clay loam

Included with this soil in mapping are small areas of Autryville, Blanton, Lakeland, Ocilla, and Seagate soils. Also included are a few areas of soils that have slopes of more than 2 percent. Included soils make up about 10 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of 3.5 to 5.0 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

About half of the acreage is used as cropland. The other half is used for woodland, pasture, or urban development.

This soil is poorly suited to row crops and small grain. The major management concerns are droughtiness and a low nutrient-holding capacity. Irrigation and split applications of fertilizer minimize these limitations. Planting cover crops and minimizing tillage improve the available water capacity and reduce the hazard of wind erosion.

This soil is well suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The major management concerns are the droughtiness and the low nutrient-holding capacity. A proper grazing system, weed control, and applications of fertilizer improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine and longleaf pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods.

This soil is suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness. Adding suitable fill material or increasing the size of the absorption field can minimize this limitation. The soil has slight limitations as a site for dwellings without basements. It is moderately limited as a site for lawns and landscaping because of the droughtiness. Frequent irrigation during dry periods helps to keep lawns and shrubbery in good condition.

BoB—Bonneau fine sand, 2 to 6 percent slopes. This gently sloping soil is on upland terraces. It is well drained. Individual areas are irregular in shape and commonly are 10 to 40 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 9 inches—dark grayish brown fine sand

Subsurface layer:
9 to 25 inches—very pale brown fine sand

Subsoil:
25 to 46 inches—reddish yellow sandy clay loam that has yellow mottles
46 to 70 inches—mottled red, reddish brown, gray, brown, and brownish yellow sandy clay loam

Included with this soil in mapping are small areas of Autryville, Blanton, Lakeland, Ocilla, and Seagate soils. Also included are a few small areas of soils that have slopes of less than 2 percent. Included soils make up about 10 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of 3.5 to 5.0 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as cropland. Some small areas are used for woodland, pasture, or urban development.

This soil is poorly suited to row crops and small grain. The major management concerns are droughtiness and a low nutrient-holding capacity. Irrigation and split applications of fertilizer minimize these limitations. Planting cover crops and minimizing tillage improve the available water capacity and reduce the hazard of wind erosion.

This soil is well suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The major management concerns are the droughtiness and the low nutrient-holding capacity. A proper grazing system, weed control, and applications of fertilizer improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine and longleaf pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods.

This soil is suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness. Adding suitable fill material or increasing the size of the absorption field can minimize this limitation. The soil has slight limitations as a site for dwellings without basements. It is moderately limited as a site for lawns and landscaping because of the droughtiness. Frequent irrigation during dry periods helps to keep lawns and shrubbery in good condition.

Br—Brookman clay loam, ponded. This nearly level soil is in depressions and drainageways on low stream terraces. It is very poorly drained. Individual areas commonly are about 30 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 4 inches—black clay loam

Subsoil:
4 to 11 inches—very dark gray clay loam
11 to 44 inches—dark gray clay that has yellowish brown and strong brown mottles
44 to 62 inches—light brownish gray clay loam that has olive yellow mottles

Substratum:
62 to 80 inches—light gray sand

Included with this soil in mapping are small areas of Eulonia, Argent, and Wahee soils. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Slow
Available water capacity: Moderate or high
Seasonal high water table: 2 feet above to 1 foot below the surface
Hazard of erosion: Slight
Shrink-swell potential: Moderate

Most areas are used as woodland.

This soil is unsuited to row crops, small grain, and pasture because of the wetness, the slow permeability, and the ponding. Overcoming these limitations is costly and difficult.

This soil is well suited to water-tolerant trees, including baldcypress, water tupelo, water oak, and red maple. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. These limitations are caused by the wetness and the ponding. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. Seedlings can be established by natural regeneration. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is generally unsuited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness, the ponding, and the slow permeability. Overcoming these limitations is costly and difficult.

By—Byars loam, ponded. This nearly level soil is in narrow drainageways, small depressions, and Carolina bays on upland terraces. It is very poorly drained. Individual areas are elongated or oval and are about 15 to 25 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 13 inches—black loam

Subsoil:
13 to 24 inches—dark gray clay loam that has very dark gray mottles
24 to 46 inches—dark gray clay that has yellowish brown, very dark gray, light brownish gray, and dark yellowish brown mottles
46 to 60 inches—dark grayish brown clay that has very dark gray, grayish brown, and yellowish brown mottles

Included with this soil in mapping are small areas of Coxville, Pantego, and Rains soils. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Slow
Available water capacity: High
Seasonal high water table: 1 foot above to 1 foot below the surface
Hazard of erosion: Slight
Shrink-swell potential: Moderate

Most areas are used as woodland.

This soil is unsuited to row crops, small grain, and pasture because of the wetness, the ponding, and the slow permeability. Overcoming these limitations is costly and difficult.

This soil is well suited to water-tolerant trees, including baldcypress, water tupelo, water oak, and red maple. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. These limitations are caused by the wetness and the ponding. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. Seedlings can be established by natural regeneration. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table.

This soil is generally unsuited to building site

development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the ponding, the wetness and the slow permeability. Overcoming these limitations is costly and difficult.

CaA—Cahaba loamy sand, 0 to 2 percent slopes. This nearly level soil is on stream terraces adjacent to the flood plain along the Savannah River. It is well drained. Individual areas are irregularly shaped and are about 10 to 20 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 8 inches—brown loamy sand

Subsoil:
8 to 54 inches—red sandy clay loam

Substratum:
54 to 75 inches—red sandy loam

Included with this soil in mapping are small areas of Eulonia, Wahee, and Argent soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 6 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. A few small areas are used for cropland or wildlife food plots.

This soil is well suited to row crops and small grain. There are no major management concerns. Crop residue management, minimum tillage, and cover crops can improve natural fertility.

This soil is well suited to pasture. Suitable grasses include improved bermudagrass and bahiagrass. There are no major management concerns. Pasture rotation and annual applications of fertilizer can improve the quality of the forage.

This soil is well suited to woodland. Suitable trees include loblolly pine. There are no major management concerns.

This soil is well suited to building site development. It has slight limitations as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping.

CaB—Cahaba loamy sand, 2 to 6 percent slopes. This gently sloping soil is on stream terraces adjacent to the flood plain along the Savannah River. It is well drained. Individual areas are irregularly shaped and are about 10 to 20 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 8 inches—brown loamy sand

Subsoil:
8 to 54 inches—red sandy clay loam

Substratum:
54 to 75 inches—red sandy loam

Included with this soil in mapping are small areas of Eulonia, Wahee, and Argent soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 6 feet
Hazard of erosion: Moderate
Shrink-swell potential: Low

Most areas are used as woodland. A few small areas are used for cropland or wildlife food plots.

This soil is well suited to row crops and small grain. The major management concern is the moderate hazard of erosion. Contour stripcropping, minimum tillage, and grassed waterways help to control erosion.

This soil is well suited to pasture. Suitable grasses include improved bermudagrass and bahiagrass. There are no major management concerns. Pasture rotation and annual applications of fertilizer improve the quality of the forage.

This soil is well suited to woodland. Suitable trees include loblolly pine. There are no major management concerns.

This soil is well suited to building site development. It has slight limitations as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping.

Ce—Centenary sand. This nearly level soil is on sandy upland terraces and around the edges of Carolina bays. It is moderately well drained. Individual areas commonly are about 25 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 10 inches—dark grayish brown sand

Subsurface layer:
10 to 35 inches—light yellowish brown sand that has strong brown, white, and red mottles

35 to 52 inches—white sand that has pinkish gray mottles

Subsoil:
52 to 77 inches—dark brown sand that has dark reddish brown mottles

Included with this soil in mapping are small areas of Chipley, Blanton, Echaw, Foxworth, Ocilla, and Seagate soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderately rapid
Available water capacity: Low or very low
Seasonal high water table: At a depth of 3.5 to 5.0 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. A few small areas are used as cropland or pasture.

This soil is poorly suited to row crops and small grain. The major management concerns are droughtiness and a low nutrient-holding capacity. Conservation tillage conserves soil moisture, reduces the hazard of wind erosion, and improves natural fertility. Fertilizers are more efficiently managed when applied at intervals rather than in single applications.

This soil is suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The droughtiness and the low nutrient-holding capacity are the major management concerns. Proper stocking rates, pasture rotation, and restricted grazing during dry periods improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine and longleaf pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness and a poor filtering capacity. Specially modified sewage systems are needed. The soil has slight limitations as a site for dwellings without basements. It is severely limited as a site for lawns and landscaping because of the droughtiness. Frequent irrigation is needed during dry periods to ensure the survival of lawn grasses and shrubs.

ChA—Chipley fine sand, 0 to 2 percent slopes. This nearly level soil is on sandy upland terraces. It is moderately well drained. Individual areas are irregular in shape and commonly are 5 to 100 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 10 inches—grayish brown fine sand

Substratum:
10 to 24 inches—yellow fine sand
24 to 45 inches—very pale brown fine sand that has yellow and light gray mottles
45 to 75 inches—white fine sand
75 to 80 inches—light gray fine sand that has very pale brown mottles

Included with this soil in mapping are small areas of Alaga, Blanton, Centenary, Foxworth, Lakeland, and Osier soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Rapid
Available water capacity: Low
Seasonal high water table: At a depth of 2 to 3 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. Some small areas are used for cropland, pasture, or urban development.

This soil is poorly suited to row crops and small grain. The major management concerns are a low nutrient-holding capacity and droughtiness. Conservation tillage conserves soil moisture, reduces the hazard of wind erosion, and improves natural fertility. Fertilizers are more efficiently managed when applied at intervals rather than in single applications.

This soil is suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The major management concerns are the droughtiness and the low nutrient-holding capacity. A proper grazing system, weed control, and applications of fertilizer improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine and longleaf pine. The major management concerns are moderate limitations affecting the use of equipment and plant competition. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

This soil is suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness and a poor filtering capacity. Specially modified sewage systems are needed. The soil is moderately limited as a site for dwellings without basements because of the wetness.

Surface and subsurface drainage systems can reduce the wetness around dwellings. The soil is severely limited as a site for lawns and landscaping because of the droughtiness. Frequent irrigation is needed during dry periods to ensure the survival of lawn grasses and shrubs.

Cx—Coxville loam. This nearly level soil is in depressions and drainageways on upland terraces. It is poorly drained. Individual areas are irregularly shaped or oval and commonly are 10 to 50 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 5 inches—very dark gray loam

Subsurface layer:
5 to 10 inches—gray loam that has brownish yellow mottles

Subsoil:
10 to 67 inches—gray clay that has brownish yellow and red mottles
67 to 75 inches—mottled gray, light gray, brownish yellow, and red clay

Included with this soil in mapping are small areas of Byars, Pantego, and Pungo soils. Included soils make up about 10 percent of the map unit.

Major soil properties—
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: Within a depth of 1.5 feet
Hazard of erosion: Slight
Shrink-swell potential: Moderate

Most areas are used as woodland. Some small areas are used for cropland, pasture, or urban development.

This soil is suited to row crops and small grain. The major management concerns are the wetness and the moderately slow permeability. A surface drainage system and land shaping help to remove excess surface water and control the water table. Crop residue management improves the tilth and fertility of the soil.

This soil is well suited to pasture. Suitable grasses include fescue and bahiagrass. The major management concern is the wetness. A surface drainage system and land shaping help to remove excess water. Restricted grazing during wet periods improves the quality of the forage and helps to keep the pasture in good condition.

This soil is well suited to woodland. Suitable trees include loblolly pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival and severe limitations affecting windthrow and plant competition. These limitations are caused by the wetness. A surface drainage system reduces the wetness. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. The seedling survival rate can be increased by planting on raised beds. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

This soil is poorly suited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness and the moderately slow permeability. The soil is unsuited to septic tank absorption fields. Effluent should be pumped to a suitable site. A surface drainage system and land shaping help to move excess surface water away from dwellings and reduce the wetness in areas used for lawns and landscaping.

Ec—Echaw sand. This nearly level soil is on sandy upland terraces. It is moderately well drained. Individual areas are irregular in shape and commonly are 10 to 50 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 9 inches—very dark grayish brown sand

Subsurface layer:
9 to 32 inches—light yellowish brown sand and loamy sand having strong brown, brownish yellow, and light brownish gray mottles
32 to 41 inches—pinkish gray sand that has pale brown mottles

Subsoil:
41 to 48 inches—dark brown sand
48 to 76 inches—dark reddish brown sand that has light brownish gray mottles

Included with this soil in mapping are small areas of Centenary, Leon, Osier, and Pickney soils. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Moderately rapid or rapid
Available water capacity: Low
Seasonal high water table: At a depth of 2.5 to 5.0 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. A few small areas are used for cropland, pasture, or urban development.

This soil is suited to row crops and small grain. The major management concerns are a low nutrient-holding

capacity and droughtiness. Fertilizers are more efficiently managed when applied at intervals rather than in single applications. Maintaining crop residue on the surface improves the nutrient-holding capacity, conserves soil moisture, and reduces the hazard of wind erosion.

This soil is suited to pasture. Suitable grasses include improved bermudagrass and bahiagrass. The major management concerns are the low nutrient-holding capacity and the droughtiness. Pasture rotation and applications of fertilizer improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine and longleaf pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods.

This soil is suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness and a poor filtering capacity. Specially modified sewage systems are needed. The soil has slight limitations as a site for dwellings without basements. It is severely limited as a site for lawns and landscaping because of the droughtiness. Frequent irrigation is needed during dry periods to ensure the survival of lawn grasses and shrubs.

Eo—Elloree loamy fine sand, occasionally flooded. This nearly level soil is in depressions and along drainageways. It is poorly drained. Individual areas are irregular in shape and commonly are 15 to 30 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 6 inches—very dark gray loamy fine sand

Subsurface layer:
6 to 23 inches—light brownish gray loamy fine sand that has light gray mottles
23 to 31 inches—light gray fine sand that has dark grayish brown mottles

Subsoil:
31 to 45 inches—gray sandy clay loam that has brownish yellow mottles
45 to 56 inches—light gray loamy sand

Substratum:
56 to 65 inches—gray sand

Included with this soil in mapping are small areas of Nakina, Osier, Plummer, Rutlege, and Seagate soils. Also included are small areas of soils having a very dark gray or black surface layer that is 10 to 20 inches thick. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderately rapid
Available water capacity: Low or moderate
Seasonal high water table: Within a depth of 1 foot
Hazard of erosion: Slight
Shrink-swell potential: Low
Flooding: Occasional, for brief or long periods

Nearly all areas are used as woodland.

This soil is unsuited to row crops, small grain, and pasture because of the wetness and the occasional flooding. Overcoming these limitations is costly and difficult.

This soil is suited to woodland. Suitable trees include loblolly pine. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. The seedling survival rate can be increased by planting on raised beds. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is generally unsuited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness and the occasional flooding. Overcoming these limitations is costly and difficult.

EpB—Emporia loamy sand, 2 to 6 percent slopes. This gently sloping soil is on upland terraces adjacent to drainageways and depressions. It is well drained. Individual areas are irregular in shape and commonly are 10 to 100 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 11 inches—grayish brown loamy sand

Subsoil:
11 to 31 inches—strong brown sandy clay loam that has red mottles
31 to 45 inches—mottled red, gray, and brownish yellow sandy clay loam
45 to 60 inches—red sandy clay loam that has

strata of sand and loamy sand and brownish yellow and gray mottles

Included with this soil in mapping are small areas of Blanton, Norfolk, and Uchee soils. Included soils make up about 10 percent of the map unit.

Major soil properties—
Permeability: Moderately slow or slow
Available water capacity: Moderate
Seasonal high water table: At a depth of 3.0 to 4.5 feet
Hazard of erosion: Moderate
Shrink-swell potential: Moderate

Most areas are used as cropland. Some small areas are used for pasture, woodland, or urban development.

This soil is well suited to row crops and small grain. The major management concern is the moderate hazard of erosion. Contour stripcropping, minimum tillage, and grassed waterways help to control erosion. Planting leguminous cover crops helps to control erosion and improves the fertility of the soil.

This soil is well suited to pasture. Suitable grasses include bermudagrass and bahiagrass. There are no major management concerns. Pasture rotation and proper stocking rates improve the quality of the forage.

This soil is well suited to woodland. Suitable trees include loblolly pine and sweetgum. The major management concerns are moderate limitations affecting seedling survival and plant competition. Planting seedlings in a shallow furrow can increase the survival rate during dry periods. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

This soil is suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness and the moderately slow or slow permeability. Adding suitable fill material and increasing the size of the absorption field can minimize these limitations. The soil has slight limitations as a site for dwellings without basements. It is moderately limited as a site for lawns and landscaping because of droughtiness. Frequent irrigation during dry periods helps to keep lawns and shrubbery in good condition.

EpC—Emporia loamy sand, 6 to 10 percent slopes. This strongly sloping soil is on upland terraces adjacent to drainageways and depressions. It is well drained. Individual areas are irregular in shape and commonly are 10 to 50 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 11 inches—grayish brown loamy sand

Subsoil:
11 to 31 inches—strong brown sandy clay loam that has red mottles
31 to 45 inches—mottled red, gray, and brownish yellow sandy clay loam
45 to 60 inches—red sandy clay loam that has strata of sand and loamy sand and brownish yellow and gray mottles

Included with this soil in mapping are small areas of Blanton and Uchee soils. Included soils make up about 10 percent of the map unit.

Major soil properties—
Permeability: Moderately slow or slow
Available water capacity: Moderate
Seasonal high water table: At a depth of 3.0 to 4.5 feet
Hazard of erosion: Moderate or severe
Shrink-swell potential: Moderate

Most areas are used as cropland. The rest are used for pasture, woodland, or urban development.

This soil is suited to row crops and small grain. The major management concern is the moderate or severe hazard of erosion. Contour stripcropping, minimum tillage, and grassed waterways help to control erosion. Planting leguminous cover crops helps to control erosion and improves the fertility of the soil.

This soil is suited to pasture. Suitable grasses include bermudagrass and bahiagrass. The major management concern is the moderate or severe hazard of erosion. Pasture rotation and proper stocking rates improve the quality of the forage and help to control erosion.

This soil is well suited to woodland. Suitable trees include loblolly pine and sweetgum. The major management concerns are moderate limitations affecting seedling survival and plant competition. Planting seedlings in a shallow furrow can increase the survival rate during dry periods. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings. Building logging roads on the contour reduces the runoff rate and helps to control erosion.

This soil is suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness and the moderately slow or slow permeability. Adding suitable fill material and increasing the size of the absorption field can minimize these limitations. The soil is moderately limited as a site for dwellings without basements because of the slope. This limitation can be minimized by cutting and filling and by modifying the design of the building. The soil is moderately limited as a site for lawns and landscaping because of droughtiness and the slope. Frequent irrigation during dry periods helps to keep lawns and

shrubbery in good condition. Erosion on newly established lawns can be controlled by mulching, constructing diversions, and interseeding with rapidly growing grasses, such as ryegrass.

EuA—Eulonia fine sandy loam, 0 to 2 percent slopes. This nearly level soil is on low stream terraces. It is moderately well drained. Individual areas commonly are about 25 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 5 inches—dark gray fine sandy loam

Subsurface layer:
5 to 14 inches—light gray fine sandy loam

Subsoil:
14 to 21 inches—brownish yellow clay that has red and pale brown mottles
21 to 33 inches—yellowish brown clay that has red, light yellowish brown, and light gray mottles
33 to 45 inches—light gray clay that has red, brownish yellow, and pale yellow mottles
45 to 68 inches—light gray and yellowish brown clay loam that has red mottles

Substratum:
68 to 80 inches—brownish yellow sandy clay loam and loamy sand having light gray and strong brown mottles

Included with this soil in mapping are small areas of Argent and Wahee soils. Also included are areas of soils that are less acid in the lower part than the Eulonia soil. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderately slow
Available water capacity: Moderate
Seasonal high water table: At a depth of 1.5 to 3.5 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. Some areas have been cleared of trees and are used for row crops, pasture, or wildlife food plots.

This soil is suited to row crops and small grain. The wetness and the moderately slow permeability are the major management concerns. A surface drainage system can reduce the wetness. Conservation tillage minimizes compaction, improves fertility, helps to maintain good tilth, and increases the rate of water infiltration.

This soil is well suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The major management concern is the wetness. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition and improve the quality of the forage.

This soil is well suited to woodland. Suitable trees include loblolly pine. The major management concerns are moderate limitations affecting the use of equipment, seedling survival, and plant competition. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. The seedling survival rate can be increased by planting on raised beds. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is suited to building site development. It is severely limited as a site for septic tank absorption fields because of the moderately slow permeability and the wetness. Effluent can be pumped to a better suited site, or specially designed systems can be installed. The soil is moderately limited as a site for dwellings without basements and for lawns and landscaping because of the wetness. A surface drainage system and land shaping help to move excess surface water away from dwellings and reduce the wetness in areas used for lawns and landscaping.

EuB—Eulonia fine sandy loam, 2 to 6 percent slopes. This gently sloping soil is on low stream terraces. It is moderately well drained. Individual areas commonly are about 25 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 5 inches—dark gray fine sandy loam

Subsurface layer:
5 to 14 inches—light gray fine sandy loam

Subsoil:
14 to 21 inches—brownish yellow clay that has red and pale brown mottles
21 to 33 inches—yellowish brown clay that has red, light yellowish brown, and light gray mottles
33 to 45 inches—light gray clay that has red, brownish yellow, and pale yellow mottles
45 to 68 inches—light gray and yellowish brown clay loam that has red mottles

Substratum:
68 to 80 inches—brownish yellow sandy clay loam and loamy sand having light gray and strong brown mottles

Included with this soil in mapping are small areas of Argent and Wahee soils. Also included are areas of soils that are less acid in the lower part than the

Eulonia soil. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderately slow
Available water capacity: Moderate
Seasonal high water table: At a depth of 1.5 to 3.5 feet
Hazard of erosion: Moderate
Shrink-swell potential: Low

Most areas are used as woodland. Some areas have been cleared of trees and are used for row crops, pasture, or wildlife food plots.

This soil is suited to row crops and small grain. The wetness, the moderately slow permeability, and the moderate hazard of erosion are the major management concerns. A surface drainage system can reduce the wetness. Conservation tillage minimizes compaction and erosion, improves fertility, helps to maintain good tilth, and increases the rate of water infiltration. Contour stripcropping, minimum tillage, and grassed waterways help to control erosion.

This soil is well suited to pasture. Suitable grasses include bahiagrass and bermudagrass. The major management concerns are the wetness and the slow permeability. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition and improve the quality of the forage.

This soil is well suited to woodland. Suitable trees include loblolly pine. The major management concerns are moderate limitations affecting the use of equipment, seedling survival, and plant competition. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. The seedling survival rate can be increased by planting on raised beds. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is suited to building site development. It is severely limited as a site for septic tank absorption fields because of the moderately slow permeability and the wetness. Effluent can be pumped to a better suited site, or specially designed systems can be installed. The soil is moderately limited as a site for dwellings without basements and for lawns and landscaping because of the wetness. A surface drainage system and land shaping help to move excess surface water away from dwellings and reduce the wetness in areas used for lawns and landscaping.

FoB—Foxworth fine sand, 0 to 6 percent slopes. This nearly level and gently sloping soil is on sandy upland terraces. It is somewhat excessively drained. Individual areas are irregular in shape and commonly are about 30 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 8 inches—grayish brown fine sand

Substratum:
8 to 54 inches—yellow, very pale brown, and reddish yellow fine sand
54 to 78 inches—yellow and very pale brown fine sand that has white mottles
78 to 85 inches—white fine sand that has very pale brown mottles

Included with this soil in mapping are small areas of Alpin, Blanton, Centenary, Chipley, Lakeland, and Osier soils. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Rapid or very rapid
Available water capacity: Low
Seasonal high water table: At a depth of 4 to 6 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. Some small areas are used for cropland, pasture, or urban development.

This soil is poorly suited to row crops and small grain. The major management concerns are droughtiness and a low nutrient-holding capacity. Fertilizers are more efficiently managed when applied at intervals rather than in single applications. Crop residue management, cover crops, and minimum tillage can improve the available water capacity and fertility of the soil and help to control wind erosion.

This soil is suited to pasture. Suitable grasses include bermudagrass and bahiagrass. The major management concerns are the droughtiness and the low nutrient-holding capacity. Pasture rotation and annual applications of fertilizer improve the quality of the forage.

This soil is suited to woodland. Suitable trees include slash pine, longleaf pine, and loblolly pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods.

This soil is suited to building site development. It is moderately limited as a site for septic tank absorption fields because of the wetness. Increasing the size of the absorption field can minimize this limitation. The soil has slight limitations as a site for dwellings without basements. It is moderately limited as a site for lawns and landscaping because of the droughtiness and the low nutrient-holding capacity. Frequent irrigation during

dry periods and split applications of fertilizer help to keep lawns and shrubbery in good condition.

GoA—Goldsboro loamy sand, 0 to 2 percent slopes. This nearly level soil is on upland terraces. It is moderately well drained. Individual areas are irregular in shape and commonly are 10 to 100 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 9 inches—dark gray loamy sand

Subsurface layer:
9 to 16 inches—very pale brown loamy sand

Subsoil:
16 to 35 inches—brownish yellow sandy clay loam that has yellowish brown, red, light brownish gray, and light gray mottles
35 to 65 inches—light gray sandy clay loam that has brownish yellow and red mottles
65 to 75 inches—mottled light gray, yellowish brown, and red sandy clay loam

Included with this soil in mapping are small areas of Bonneau, Noboco, Ocilla, Lynchburg, and Rains soils. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of 2 to 3 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as cropland. A few small areas are used for pasture, woodland, or urban development.

This soil is well suited to row crops and small grain. The major management concern is the wetness. Surface and subsurface drainage systems help to control the water table and reduce the wetness. Crop residue management can increase the content of organic matter and improve fertility.

This soil is well suited to pasture. Suitable grasses include bahiagrass and bermudagrass. The major management concern is the wetness. Pasture rotation and restricted grazing during wet periods can improve the quality of the forage. A surface drainage system can reduce the wetness.

This soil is well suited to woodland. Suitable trees include loblolly pine and sweetgum. The major management concern is moderate plant competition caused by the wetness. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness. Adding suitable fill material and increasing the size of the absorption field can minimize this limitation. The soil is moderately limited as a site for dwellings without basements because of the wetness. Land shaping and a surface drainage system can minimize this limitation. The soil has slight limitations as a site for lawns and landscaping.

Gr—Grifton-Osier complex, frequently flooded. These nearly level, poorly drained soils generally are on broad flood plains along the Coosawhatchie and Combahee Rivers. The flood plains are dissected by numerous intermittent and perennial streams. The poorly drained Grifton soil is mainly along the edges of the flood plains. The Osier soil is mainly along old streambeds and in scattered areas on the higher parts of the flood plains. Individual areas are elongated and are 500 to 2,000 acres in size. Slopes range from 0 to 2 percent.

The Grifton soil makes up about 60 percent of the map unit and the Osier soil about 30 percent. The Grifton and Osier soils occur as areas so closely intermingled that mapping them separately is not practical.

A typical profile of the Grifton soil is as follows—

Surface layer:
0 to 6 inches—dark grayish brown fine sandy loam

Subsurface layer:
6 to 13 inches—light brownish gray loamy fine sand

Subsoil:
13 to 21 inches—gray sandy loam that has light gray mottles
21 to 48 inches—gray sandy clay loam that has yellowish brown and light gray mottles

Substratum:
48 to 65 inches—light gray sand

Major properties of the Grifton soil—
Permeability: Moderate
Available water capacity: Low or moderate
Seasonal high water table: At a depth of 0.5 to 1.0 foot
Hazard of erosion: Slight
Shrink-swell potential: Low
Flooding: Frequent, for brief or long periods

A typical profile of the Osier soil is as follows—

Surface layer:
0 to 6 inches—very dark gray loamy sand

Substratum:
6 to 19 inches—light gray sand

19 to 35 inches—dark gray loamy sand
35 to 70 inches—grayish brown coarse sand

Major properties of the Osier soil—
Permeability: Rapid or very rapid
Available water capacity: Low
Seasonal high water table: Within a depth of 1 foot
Hazard of erosion: Slight
Shrink-swell potential: Low
Flooding: Frequent, for brief periods

Included with these soils in mapping are small areas of Argent, Elloree, Nakina, Pickney, and Seagate soils. Included soils make up about 15 percent of the map unit.

Most areas are used as woodland.

These soils are unsuited to row crops, small grain, and pasture because of the frequent flooding and the wetness. Overcoming these limitations is costly and difficult.

These soils are well suited to water-tolerant trees, including baldcypress, water tupelo, water oak, and red maple. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. These limitations are caused by the wetness and the frequent flooding. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. Seedlings can be established by natural regeneration. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table.

These soils are generally unsuited to building site development. They have severe limitations as sites for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the frequent flooding and the wetness. Overcoming these limitations is costly and difficult.

Hp—Haplaquents, loamy. These nearly level, wet, loamy soils are in areas where soil material has been removed to a depth of 3 to 15 feet. Individual areas range from 5 to more than 50 acres in size. Slopes generally range from 0 to 2 percent.

In a typical profile the upper 60 inches is mottled red, yellow, brown, and gray sandy clay loam stratified with sandy and clayey material.

Included with these soils in mapping are small areas of Blanton, Bonneau, Emporia, and Norfolk soils. Also included are small areas of soils that are intermittently ponded. Included soils make up about 10 percent of the map unit.

Major soil properties—
Permeability: Slow or moderately slow
Available water capacity: Moderate
Seasonal high water table: Within a depth of 2 feet
Hazard of erosion: Moderate
Shrink-swell potential: Low

Most areas are used as woodland. Some small areas are used for recreational purposes. Some areas have been converted to fish ponds. The suitability of these soils for specific land uses varies, depending on the texture and drainage. The natural fertility of the soils is very low.

These soils are suited to woodland and pasture where excess surface water has been removed. In some areas they are suited to cropland, recreational development, and wildlife habitat. The soils vary so considerably that onsite investigation is needed to determine the suitability for any proposed use and the limitations affecting that use.

LaB—Lakeland sand, 0 to 6 percent slopes. This nearly level and gently sloping soil is on sandy upland terraces. It is excessively drained. Individual areas commonly are irregularly shaped and are about 50 to 100 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 7 inches—dark brown sand

Substratum:
7 to 31 inches—yellowish brown sand
31 to 55 inches—strong brown sand
55 to 61 inches—yellow sand that has white mottles
61 to 80 inches—very pale brown sand that has white and yellow mottles

Included with this soil in mapping are small areas of Alaga, Alpin, Autryville, Blanton, Bonneau, and Foxworth soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Rapid
Available water capacity: Low
Seasonal high water table: At a depth of more than 6 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. A few small areas are used for cropland, pasture, or urban development.

This soil is poorly suited to row crops and small grain. Droughtiness and a low nutrient-holding capacity are the major management concerns. Irrigation and

applications of fertilizer minimize these limitations and improve crop yields. Crop residue management, cover crops, and minimum tillage improve the available water capacity and fertility of the soil and help to control wind erosion.

This soil is suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The droughtiness and the low nutrient-holding capacity are the major management concerns. Irrigation, pasture rotation, and applications of fertilizer can improve the quality of the forage.

This soil is suited to woodland. Suitable trees include slash pine, loblolly pine, and longleaf pine. The major management concerns are moderate limitations affecting the use of equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

This soil is well suited to building site development. It has slight limitations as a site for septic tank absorption fields and dwellings without basements. The soil is moderately limited as a site for lawns and landscaping because of the droughtiness and the low nutrient-holding capacity. Frequent irrigation during dry periods and split applications of fertilizer help to keep lawns and shrubbery in good condition.

Le—Leon sand. This nearly level soil is on sandy upland terraces. It is poorly drained. Individual areas are irregular in shape and are 10 to 50 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 4 inches—black sand

Subsurface layer:
4 to 12 inches—brown sand that has light brownish gray mottles

Subsoil:
12 to 32 inches—very dark gray and dark brown fine sand
32 to 50 inches—black loamy fine sand

Substratum:
50 to 70 inches—brown fine sand

Included with this soil in mapping are small areas of Echaw, Centenary, Chipley, Pelham, Pickney, and Seagate soils. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Moderate or moderately rapid
Available water capacity: Low
Seasonal high water table: At a depth of 0.5 foot to 1.5 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. A few small areas are used for cropland, pasture, or urban development.

This soil is poorly suited to row crops and small grain. The major management concerns are a low nutrient-holding capacity and the wetness. Drainage can be improved by open ditches or subsurface drains. Where subsurface drains are installed, a filter is needed to keep sand from entering the tile lines. Conservation tillage can improve natural fertility. Fertilizers are more efficiently managed when applied at intervals rather than in single applications.

This soil is suited to pasture. Suitable grasses include bahiagrass. The major management concerns are the wetness and the low nutrient-holding capacity. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted grazing during wet periods help to keep the pasture in good condition and improve the quality of the forage.

This soil is suited to woodland. Suitable trees include slash pine and loblolly pine. The major management concerns are moderate limitations affecting the use of equipment, seedling survival, and windthrow and severe limitations affecting plant competition. These limitations are caused by the wetness. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. The seedling survival rate can be increased by planting on raised beds. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

This soil is poorly suited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness. The soil is generally unsuited to septic tank absorption fields. Effluent should be pumped to a suitable site. A surface drainage system can help to move excess surface water away from dwellings and reduce the wetness in areas used for lawns and landscaping.

Ly—Lynchburg loamy fine sand. This nearly level soil is on upland terraces. It is somewhat poorly drained. Individual areas are irregular in shape and commonly are about 20 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 9 inches—dark gray loamy fine sand

Subsurface layer:
9 to 16 inches—very pale brown loamy fine sand that has yellow and light gray mottles

Subsoil:
16 to 51 inches—gray sandy clay loam that has red, brownish yellow, and yellowish brown mottles
51 to 75 inches—dark gray sandy clay loam that has red and brownish yellow mottles

Included with this soil in mapping are small areas of Coxville, Noboco, Ocilla, Pantego, Pelham, and Rains soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of 0.5 foot to 1.5 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. Some small areas have been cleared of trees and drained and are used for cropland, pasture, or urban development.

This soil is well suited to row crops and small grain. The major management concern is the wetness. Surface and subsurface drainage systems help to control the water table and reduce the wetness. Minimum tillage can minimize compaction and surface crusting and improve tilth and soil structure.

This soil is well suited to pasture. Suitable grasses include bahiagrass. The major management concern is the wetness. Restricted grazing during wet periods helps to keep the pasture in good condition. A surface drainage system can help to control the water table.

This soil is well suited to woodland. Suitable trees include slash pine, loblolly pine, and sweetgum. The major management concerns are moderate limitations affecting the use of equipment and severe limitations affecting plant competition. These limitations are caused by the wetness. A surface drainage system can minimize the limitations. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

This soil is poorly suited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness. Specially designed septic tank absorption fields are needed because of the seasonal high water table. Adding fill material around buildings, installing a surface drainage system, and land shaping help to move excess surface water away from dwellings and reduce the wetness in areas used for lawns and landscaping.

Na—Nakina fine sandy loam, occasionally flooded. This nearly level soil is at the edge of flood plains along the major rivers and swamps and in slight depressions. It is very poorly drained. Individual areas commonly are elongated and are about 20 to 50 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 16 inches—black fine sandy loam

Subsoil:
16 to 37 inches—dark gray sandy clay loam that has light brownish gray mottles
37 to 43 inches—gray sandy clay loam that has brownish yellow and dark gray mottles
43 to 55 inches—gray sandy clay loam that has olive brown, strong brown, and olive gray mottles
55 to 60 inches—gray sandy clay loam that has strata of loamy sand

Included with this soil in mapping are small areas of Elloree, Grifton, Pickney, Pelham, Plummer, and Rains soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderate or moderately rapid
Available water capacity: Moderate
Seasonal high water table: Within a depth of 1 foot
Hazard of erosion: Slight
Shrink-swell potential: Low
Flooding: Occasional, for brief periods

Most areas are used as woodland.

This soil is unsuited to row crops, small grain, and pasture because of the wetness and the occasional flooding. Overcoming these limitations is costly and difficult.

This soil is suited to water-tolerant trees, including baldcypress, water tupelo, water oak, sweetgum, and red maple. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. These limitations are caused by the wetness. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should

be harvested only during dry periods. Seedlings can be established by natural regeneration. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

This soil is generally unsuited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the occasional flooding and the wetness. Overcoming these limitations is costly and difficult.

NeA—Nansemond loamy sand, 0 to 2 percent slopes. This nearly level soil is on upland terraces. It is moderately well drained. Individual areas are irregular in shape and commonly are 10 to 100 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 8 inches—dark grayish brown loamy sand

Subsurface layer:
8 to 15 inches—light yellowish brown loamy sand

Subsoil:
15 to 35 inches—brownish yellow sandy loam that has yellowish brown and light gray mottles
35 to 55 inches—mottled light gray, strong brown, and red sandy loam
55 to 65 inches—light gray loamy sand that has strong brown and red mottles

Included with this soil in mapping are small areas of Bonneau, Goldsboro, Ocilla, and Rains soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderately rapid
Available water capacity: Low or moderate
Seasonal high water table: At a depth of 1.5 to 2.5 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as cropland. Some small areas are used for woodland, pasture, or urban development.

This soil is well suited to row crops and small grain. The major management concerns are the wetness and a low nutrient-holding capacity. Surface and subsurface drainage systems help to control the water table. Water-control structures may be needed to maintain adequate soil moisture levels for plants. If subsurface drains are installed, a filter may be needed to prevent clogging. Fertilizers are more efficiently managed when applied at intervals rather than in single applications. Crop residue management helps to control wind erosion and improves natural fertility.

This soil is well suited to pasture. Suitable grasses include bahiagrass and bermudagrass. The major management concerns are the wetness and the low nutrient-holding capacity. A surface drainage system can help to control the water table. Applications of fertilizer and pasture rotation can improve the quality of the forage.

This soil is well suited to woodland. Suitable trees include loblolly pine and yellow-poplar. The major management concerns are moderate limitations affecting the use of equipment, seedling survival, and plant competition. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness. Adding suitable fill material and increasing the size of the absorption field can minimize this limitation. The soil is moderately limited as a site for dwellings without basements and for lawns and landscaping because of the wetness. Land shaping and surface drainage systems can reduce the wetness. The soil is moderately limited as a site for lawns and landscaping because of droughtiness. Frequent irrigation during dry periods helps to keep lawns and shrubbery in good condition.

NoA—Noboco loamy sand, 0 to 2 percent slopes. This nearly level soil is on upland terraces. It is well drained. Individual areas are irregular in shape and commonly are 10 to 20 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 9 inches—grayish brown loamy sand

Subsurface layer:
9 to 13 inches—pale brown loamy sand

Subsoil:
13 to 38 inches—brownish yellow sandy clay loam that has red mottles
38 to 58 inches—brownish yellow sandy clay loam that has light gray, light yellowish brown, and red mottles
58 to 75 inches—mottled red, brownish yellow, and light gray sandy clay loam

Included with this soil in mapping are small areas of Autryville, Blanton, Bonneau, Lynchburg, and Rains

soils. Also included are a few small areas of soils that have slopes of more than 2 percent. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of 2.5 to 4.0 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as cropland. A few small areas are used as pasture or woodland.

This soil is well suited to row crops and small grain. There are no major management concerns. Conservation tillage minimizes compaction and surface crusting and improves natural fertility.

This soil is well suited to pasture. Suitable grasses include improved bermudagrass and bahiagrass. There are no major management concerns. Pasture rotation and annual applications of fertilizer can improve the quality of the forage.

This soil is well suited to woodland. Suitable trees include loblolly pine. The main management concern is moderate plant competition. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is well suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness. Adding suitable fill material or increasing the size of the absorption field can minimize this limitation. The soil has slight limitations as a site for dwellings without basements and for lawns and landscaping.

NoB—Noboco loamy sand, 2 to 6 percent slopes. This gently sloping soil is on upland terraces. It is well drained. Individual areas are irregular in shape and commonly are about 20 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 9 inches—grayish brown loamy sand

Subsurface layer:
9 to 13 inches—pale brown loamy sand

Subsoil:
13 to 38 inches—brownish yellow sandy clay loam that has red mottles
38 to 58 inches—brownish yellow sandy clay loam that has light gray, light yellowish brown, and red mottles
58 to 75 inches—mottled red, brownish yellow, and light gray sandy clay loam

Included with this soil in mapping are small areas of Autryville, Blanton, Bonneau, Lynchburg, and Rains soils. Also included are a few small areas of soils that have slopes of less than 2 percent. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of 2.5 to 4.0 feet
Hazard of erosion: Slight or moderate
Shrink-swell potential: Low

Most areas are used as cropland. A few small areas are used as pasture or woodland.

This soil is well suited to row crops and small grain. The major management concern is the slight or moderate hazard of erosion. Conservation tillage reduces the hazard of erosion, minimizes compaction and surface crusting, and conserves soil moisture. Contour stripcropping and grassed waterways help to control erosion.

This soil is well suited to pasture. Suitable grasses include improved bermudagrass and bahiagrass. There are no major management concerns. Pasture rotation and annual applications of fertilizer can improve the quality of the forage.

This soil is well suited to woodland. Suitable trees include loblolly pine. The main management concern is moderate plant competition. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is well suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness. Adding suitable fill material or increasing the size of the absorption field can minimize this limitation. The soil has slight limitations as a site for dwellings without basements and for lawns and landscaping.

NrA—Norfolk loamy sand, 0 to 2 percent slopes. This nearly level soil is on upland terraces. It is well drained. Individual areas are irregular in shape and commonly are 10 to 20 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 11 inches—brown loamy sand

Subsurface layer:
11 to 16 inches—very pale brown loamy sand that has light yellowish brown mottles

Subsoil:
16 to 20 inches—brownish yellow sandy loam that has strong brown mottles
20 to 52 inches—strong brown sandy clay loam

52 to 60 inches—strong brown sandy clay loam that has gray and red mottles
60 to 70 inches—mottled gray, brownish yellow, reddish brown, and red sandy clay loam that has strata of sandy loam and loamy sand

Included with this soil in mapping are small areas of Autryville, Blanton, Bonneau, Lynchburg, and Rains soils. Also included are a few small areas of soils that have slopes of more than 2 percent. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of 4 to 6 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as cropland. A few small areas are used as pasture or woodland.

This soil is well suited to row crops and small grain. There are no major management concerns. Conservation tillage minimizes compaction and surface crusting, improves natural fertility, and conserves soil moisture.

This soil is well suited to pasture. Suitable grasses include improved bermudagrass and bahiagrass. There are no major management concerns. Pasture rotation and annual applications of fertilizer can improve the quality of the forage.

This soil is well suited to woodland. Suitable trees include loblolly pine and longleaf pine. There are no major management concerns.

This soil is well suited to building site development. It is moderately limited as a site for septic tank absorption fields because of the wetness. Increasing the size of the absorption field can minimize this limitation. The soil has slight limitations as a site for dwellings without basements and for lawns and landscaping.

NrB—Norfolk loamy sand, 2 to 6 percent slopes. This gently sloping soil is on upland terraces. It is well drained. Individual areas are irregular in shape and commonly are about 20 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 11 inches—brown loamy sand

Subsurface layer:
11 to 16 inches—very pale brown loamy sand that has light yellowish brown mottles

Subsoil:
16 to 20 inches—brownish yellow sandy loam that has strong brown mottles
20 to 52 inches—strong brown sandy clay loam
52 to 60 inches—strong brown sandy clay loam that has gray and red mottles
60 to 70 inches—mottled gray, brownish yellow, reddish brown, and red sandy clay loam that has strata of sandy loam and loamy sand

Included with this soil in mapping are a few small areas of Autryville, Blanton, Bonneau, Emporia, Lynchburg, and Rains soils. Also included are a few small areas of soils that have slopes of more than 6 percent. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of 4 to 6 feet
Hazard of erosion: Slight or moderate
Shrink-swell potential: Low

Most areas are used as cropland. A few small areas are used as pasture or woodland.

This soil is well suited to row crops and small grain. The major management concern is the slight or moderate hazard of erosion. Conservation tillage reduces the hazard of erosion, minimizes compaction and surface crusting, and conserves soil moisture. Contour stripcropping and grassed waterways help to control erosion.

This soil is well suited to pasture. Suitable grasses include improved bermudagrass and bahiagrass. There are no major management concerns. Pasture rotation and annual applications of fertilizer can improve the quality of the forage.

This soil is well suited to woodland. Suitable trees include loblolly pine and longleaf pine. There are no major management concerns.

This soil is well suited to building site development. It is moderately limited as a site for septic tank absorption fields because of the wetness. Increasing the size of the absorption field can minimize this limitation. The soil has slight limitations as a site for dwellings without basements and for lawns and landscaping.

OcA—Ocilla fine sand, 0 to 2 percent slopes. This nearly level soil is on low ridges on sandy upland terraces. It is somewhat poorly drained or moderately well drained. Individual areas commonly are about 10 to 50 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 12 inches—gray and grayish brown fine sand

Subsurface layer:
12 to 27 inches—very pale brown loamy fine sand that has light gray mottles

Subsoil:
27 to 46 inches—light yellowish brown fine sandy loam that has yellowish brown, light gray, and red mottles
46 to 68 inches—brownish yellow fine sandy loam that has red, light gray, and light yellowish brown mottles
68 to 80 inches—light gray sandy clay loam that has brownish yellow and red mottles

Included with this soil in mapping are small areas of Pelham, Osier, Seagate, and Rains soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of 1.0 to 2.5 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. Some small areas are used for cropland, pasture, or urban development.

This soil is suited to row crops and small grain. The major management concerns are the wetness and a low nutrient-holding capacity. Surface and subsurface drainage systems help to control the water table and reduce the wetness. Crop residue management, minimum tillage, and cover crops reduce the hazard of wind erosion and improve natural fertility. Fertilizers are more efficiently managed when applied at intervals rather than in single applications.

This soil is suited to pasture. Suitable grasses include improved bermudagrass and bahiagrass. The major management concern is the wetness. A surface drainage system reduces the wetness. Pasture rotation and annual applications of fertilizer can improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine. The major management concerns are moderate limitations affecting the use of equipment, seedling survival, and plant competition. A surface drainage system reduces the wetness. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is poorly suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness. Specially designed septic tank absorption fields are needed because of the seasonal high water table. The soil is moderately limited as a site for dwellings without basements and for lawns and landscaping because of the wetness. A surface drainage system and land shaping help to move excess surface water away from dwellings and reduce the wetness in areas used for lawns and landscaping. The soil is moderately limited as a site for lawns and landscaping because of droughtiness and the low nutrient-holding capacity. Frequent irrigation during dry periods and split applications of fertilizer help to keep lawns and shrubbery in good condition.

Oe—Osier loamy sand. This nearly level soil is in narrow drainageways and depressions. It is poorly drained. Most areas are elongated and are 10 to 30 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 6 inches—very dark gray loamy sand

Substratum:
6 to 19 inches—light gray sand
19 to 35 inches—dark gray loamy sand
35 to 70 inches—grayish brown coarse sand that has very pale brown mottles

Included with this soil in mapping are small areas of Elloree, Grifton, and Rutlege soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Rapid or very rapid
Available water capacity: Low
Seasonal high water table: Within a depth of 0.5 foot
Hazard of erosion: Slight
Shrink-swell potential: Low
Flooding: Rare, during periods of abnormally high rainfall

Most areas are used as woodland. A few small areas are used as cropland or pasture.

This soil is poorly suited to row crops and small grain. The wetness and a low nutrient-holding capacity are the major management concerns. A drainage system can help to control the water table. Crop residue management can improve natural fertility. Fertilizers are more efficiently managed when applied at intervals rather than in single applications.

This soil is poorly suited to pasture. Suitable grasses include bahiagrass. The wetness and the low nutrient-holding capacity are the major management concerns. A drainage system, pasture rotation, weed control, and annual applications of fertilizer can improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine. The major management concerns are

severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. The seedling survival rate can be increased by planting on raised beds. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

This soil is generally unsuited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness and the flooding. Overcoming these limitations is costly and difficult.

Oy—Osier-Pickney complex, frequently flooded. These nearly level soils generally are on broad flood plains along the Salkehatchie River. The flood plains are dissected by numerous intermittent and perennial streams. The poorly drained Osier soil is mainly in old streambeds or adjacent to streams. Floodwater moves over the surface of this soil. The very poorly drained Pickney soil is mainly in areas between the Osier soil and the uplands. It is in areas that receive subsurface seepage from the uplands and from backwater areas. Individual areas generally are elongated and are 500 to 2,000 acres in size. Slopes range from 0 to 2 percent.

The Osier soil makes up about 55 percent of the map unit and the Pickney soil about 35 percent. The Osier and Pickney soils occur as areas so closely intermingled that mapping them separately is not practical.

A typical profile of the Osier soil is as follows—

Surface layer:
0 to 6 inches—very dark gray loamy sand

Substratum:
6 to 19 inches—light gray sand
19 to 35 inches—dark gray loamy sand
35 to 70 inches—grayish brown coarse sand that has very pale brown mottles

Major properties of the Osier soil—
Permeability: Rapid or very rapid
Available water capacity: Low
Seasonal high water table: Within a depth of 1 foot
Hazard of erosion: Slight
Shrink-swell potential: Low
Flooding: Frequent, for brief periods

A typical profile of the Pickney soil is as follows—

Surface layer:
0 to 29 inches—black fine sand and loamy fine sand

Substratum:
29 to 57 inches—dark gray fine sand that has light brownish gray mottles
57 to 75 inches—light gray fine sand that has grayish brown mottles

Major properties of the Pickney soil—
Permeability: Rapid
Available water capacity: Low
Seasonal high water table: 1.0 foot above to 1.5 feet below the surface
Hazard of erosion: Slight
Shrink-swell potential: Low
Flooding: Frequent, for brief or long periods

Included with these soils in mapping are a few small areas of Elloree, Grifton, and Rutlege soils. Included soils make up about 10 percent of the map unit.

Most areas are used as woodland. A few small areas are managed as wetland wildlife habitat.

Because of the frequent flooding, the wetness, and the ponding, these soils are unsuited to row crops, small grain, pasture, and building site development. Overcoming these limitations is costly and difficult.

These soils are suited to water-tolerant trees, including baldcypress, red maple, sweetgum, water oak, and water tupelo. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. Seedlings can be established by natural regeneration. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

Pa—Pantego loam, ponded. This nearly level soil is in drainageways and depressions on upland terraces. It is very poorly drained. Individual areas are either oval or elongated and commonly are about 20 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 19 inches—black and very dark gray loam

Subsurface layer:
19 to 24 inches—gray fine sandy loam that has pockets of light gray fine sand

Subsoil:
24 to 62 inches—dark gray sandy clay loam and clay loam having brownish yellow, light gray, and very dark gray mottles
62 to 70 inches—gray sandy clay loam that has pockets of light brownish gray loamy sand

Included with this soil in mapping are small areas of Byars, Coxville, Pelham, Pungo, and Seagate soils. Included soils make up about 10 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Moderate or high
Seasonal high water table: As much as 2 feet above the surface
Hazard of erosion: Slight
Shrink-swell potential: Low

Nearly all areas are used as woodland.

This soil is unsuited to row crops, small grain, and pasture because of the wetness and the ponding. Overcoming these limitations is costly and difficult.

This soil is suited to water-tolerant trees, including baldcypress, red maple, blackgum, water tupelo, and water oak. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. These limitations are caused by the wetness and the ponding. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. Seedlings can be established by natural regeneration. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is generally unsuited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness and the ponding. Overcoming these limitations is costly and difficult.

Pe—Pelham loamy sand. This nearly level soil is in drainageways and depressions on upland terraces. It is poorly drained. Individual areas are irregular in shape and commonly are 10 to 20 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 14 inches—very dark gray and dark grayish brown loamy sand

Subsurface layer:
14 to 34 inches—light gray loamy sand

Subsoil:
34 to 50 inches—light gray sandy clay loam that has brownish yellow, very pale brown, and red mottles
50 to 75 inches—gray sandy clay loam that has brownish yellow and light gray mottles

Included with this soil in mapping are small areas of Pantego, Pickney, Plummer, and Rutlege soils. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: Within a depth of 1 foot
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. A few small areas are used for cropland, pasture, or urban development.

This soil is poorly suited to row crops and small grain. The major management concerns are a low nutrient-holding capacity and the wetness. Drainage can be improved by open ditches or subsurface drains. Where subsurface drains are installed, a filter is needed to keep sand from entering the tile lines. Water-control structures in open ditches can help to control the level of the water table during dry periods. Fertilizers are more efficiently managed when applied at intervals rather than in single applications. Minimum tillage can improve natural fertility.

This soil is poorly suited to pasture. Suitable grasses include bahiagrass. The major management concerns are the wetness and the low nutrient-holding capacity. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted grazing during wet periods help to keep the pasture in good condition.

This soil is suited to woodland. Suitable trees include loblolly pine. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. These limitations are caused by the wetness. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. The seedling survival rate can be increased by planting on raised beds. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Chopping and harrowing can

minimize plant competition and increase the seedling survival rate.

This soil is generally unsuited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness. Overcoming this limitation is costly and difficult.

Pk—Pickney loamy fine sand, ponded. This nearly level soil is in drainageways and depressions. It is very poorly drained. Most areas are elongated and are 20 to 100 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 29 inches—black loamy fine sand and fine sand

Substratum:
29 to 57 inches—dark gray fine sand that has light brownish gray mottles
57 to 75 inches—light gray fine sand that has grayish brown mottles

Included with this soil in mapping are small areas of Elloree, Grifton, Pelham, and Seagate soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Rapid
Available water capacity: Low
Seasonal high water table: 1 foot above to 1 foot below the surface
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland.

This soil is unsuited to row crops, small grain, and pasture because of the wetness and the ponding. Overcoming these limitations is costly and difficult.

This soil is suited to water-tolerant trees, including baldcypress, red maple, sweetgum, water tupelo, and water oak. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. These limitations are caused by the wetness and the ponding. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. Seedlings can be established by natural regeneration. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is generally unsuited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness and the ponding. Overcoming these limitations is costly and difficult.

Pm—Plummer loamy fine sand. This nearly level soil is in drainageways and depressions on upland terraces. It is poorly drained. Individual areas commonly are elongated and are about 30 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 6 inches—black loamy fine sand that has light gray mottles

Subsurface layer:
6 to 11 inches—grayish brown loamy fine sand that has dark gray mottles
11 to 65 inches—light brownish gray and light gray loamy fine sand that has brownish gray, very pale brown, and grayish brown mottles

Subsoil:
65 to 80 inches—light gray fine sandy loam that has light brownish gray mottles

Included with this soil in mapping are small areas of Pantego, Pickney, and Rutlege soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: Within a depth of 1 foot
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. A few small areas are used as cropland or pasture.

This soil is poorly suited to row crops and small grain. The major management concerns are the wetness and a low nutrient-holding capacity. Surface and subsurface drainage systems can reduce the wetness if adequate outlets are available. Conservation tillage can improve natural fertility. Fertilizers are more efficiently managed when applied at intervals rather than in single applications.

This soil is poorly suited to pasture. Suitable grasses include bahiagrass. The major management concern is the wetness. A surface drainage system can reduce the wetness if adequate outlets are available. Restricted grazing during wet periods improves the quality of the forage and helps to keep the pasture in good condition.

This soil is suited to woodland. Suitable trees include loblolly pine. The major management concerns are

severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. The seedling survival rate can be increased by planting on raised beds. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is generally unsuited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness. Overcoming this limitation is costly and difficult.

Pu—Pungo muck, ponded. This nearly level soil is in deep depressions and in Carolina bays. It is very poorly drained. Individual areas are either oval or elongated and commonly are 20 to 50 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 59 inches—dark reddish brown, black, and dark brown muck

Substratum:
59 to 75 inches—very dark gray and dark gray loam and clay loam

Included with this soil in mapping are small areas of Rains, Pantego, and Coxville soils. Also included are small areas of soils that are organic to a depth of 20 to 51 inches. Included soils make up about 10 percent of the map unit.

Major soil properties—
Permeability: Slow
Available water capacity: High or very high
Seasonal high water table: 1 foot above to 1 foot below the surface
Hazard of erosion: Slight
Shrink-swell potential: Moderate in the substratum

This soil is used as woodland.

This soil is unsuited to row crops, small grain, and pasture because of the wetness, the ponding, and subsidence of the organic material. Overcoming these limitations is costly and difficult.

This soil is suited to water-tolerant trees, including pond pine, baldcypress, red maple, sweetgum, water tupelo, and water oak. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. These limitations are caused by the organic surface layer, the wetness, and the ponding. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Seedlings can be established by natural regeneration. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is generally unsuited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness, the ponding, low strength, and subsidence of the organic material. Overcoming these limitations is costly and difficult.

Ra—Rains fine sandy loam. This nearly level soil is in depressions and drainageways on upland terraces. It is poorly drained. Individual areas are elongated or irregular in shape and commonly are 10 to 100 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 6 inches—very dark gray fine sandy loam

Subsurface layer:
6 to 10 inches—light gray fine sandy loam that has brownish yellow mottles

Subsoil:
10 to 66 inches—gray sandy clay loam that has yellowish brown, dark yellowish brown, brown, red, and brownish yellow mottles
66 to 80 inches—gray sandy clay that has light gray, red, and strong brown mottles

Included with this soil in mapping are small areas of Coxville, Goldsboro, Pantego, and Pelham soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: Within a depth of 1 foot
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. Some small areas are used for cropland, pasture, or urban development.

This soil is well suited to row crops and small grain. The major management concern is the wetness. Surface and subsurface drainage systems help to

control the water table and reduce the wetness. Planting crops on raised beds helps to prevent seed decay or drowning. Land shaping can help to remove surface water and thus can reduce the number of wet spots in the fields. Returning crop residue to the soil improves fertility, minimizes crusting, and increases the rate of water infiltration.

This soil is well suited to pasture. Suitable grasses include bahiagrass. The major management concern is the wetness. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted grazing during wet periods help to keep the pasture in good condition.

This soil is well suited to woodland. Suitable trees include loblolly pine and sweetgum. The major management concerns are moderate limitations affecting the use of equipment and seedling survival and severe limitations affecting windthrow and plant competition. These limitations are caused by the seasonal high water table. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. The seedling survival rate can be increased by planting on raised beds (fig. 3). When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Site preparation, prescribed burning, cutting, and girdling can minimize plant competition and ensure the maximum growth of seedlings.

This soil is poorly suited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness. The soil is not suited to septic tank absorption fields because of the seasonal high water table. Effluent should be pumped to a suitable site. Adding fill material around buildings, installing a surface drainage system, and land shaping help to move excess surface water away from dwellings and reduce the wetness in areas used for lawns and landscaping.

Re—Rembert sandy loam, ponded. This nearly level soil is in shallow depressions and Carolina bays on upland terraces. It is poorly drained. The depressions have no natural outlets. Individual areas commonly are 10 to 50 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 7 inches—very dark gray sandy loam

Subsoil:
7 to 19 inches—dark grayish brown sandy clay that has yellowish brown and very dark gray mottles
19 to 33 inches—dark gray sandy clay that has yellowish brown and light yellowish brown mottles
33 to 54 inches—light gray sandy clay loam that has light yellowish brown mottles

Substratum:
54 to 80 inches—light gray loamy sand that has pockets and strata of sandy clay loam and yellowish brown and light yellowish brown mottles

Included with this soil in mapping are small areas of Byars, Coxville, Rains, Pantego, and Pelham soils. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Slow
Available water capacity: Moderate
Seasonal high water table: 1 foot above to 1 foot below the surface
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland.

This soil is unsuited to row crops, small grain, and pasture because of the wetness, the ponding, and the slow permeability. Overcoming these limitations is costly and difficult.

This soil is suited to water-tolerant trees, including baldcypress, red maple, sweetgum, water oak, and water tupelo. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. Seedlings can be established by natural regeneration. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is generally unsuited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness, the ponding, and the slow permeability. Overcoming these limitations is costly and difficult.

Ru—Rutlege loamy fine sand, ponded. This nearly level soil is in shallow depressions, drainageways, and Carolina bays. It is very poorly drained. Individual areas commonly are oval or irregularly shaped and are 10 to 40 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Figure 3.—Seedlings planted on raised beds in an area of Rains fine sandy loam.

Surface layer:
0 to 13 inches—black loamy fine sand

Substratum:
13 to 25 inches—dark gray fine sand
25 to 53 inches—gray fine sand
53 to 65 inches—light gray fine sand

Included with this soil in mapping are small areas of Osier, Pantego, Pelham, and Pickney soils. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Rapid
Available water capacity: Low
Seasonal high water table: 2 feet above to 1 foot below the surface
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland.

This soil is unsuited to row crops, small grain, and pasture because of the wetness and the ponding. Overcoming these limitations is costly and difficult.

This soil is suited to water-tolerant trees, including baldcypress, red maple, sweetgum, water tupelo, and yellow-poplar. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. Seedlings can be established by natural regeneration. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is generally unsuited to building site development. It is severely limited as a site for septic tank absorption fields, dwellings without basements, and lawns and landscaping because of the wetness and the ponding. Overcoming these limitations is costly and difficult.

Se—Seagate sand. This nearly level soil is on the lower side slopes on upland terraces. It is somewhat poorly drained. Individual areas are irregular in shape and commonly are 5 to 25 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 13 inches—dark gray sand

Upper subsoil:
13 to 19 inches—dark reddish brown loamy sand that has dark brown mottles

Subsurface layer:
19 to 35 inches—yellow sand that has light gray, reddish yellow, and red mottles

Lower subsoil:
35 to 55 inches—gray sandy loam that has yellowish brown and brownish yellow mottles
55 to 70 inches—gray fine sandy loam

Included with this soil in mapping are small areas of Echaw, Leon, Ocilla, Pelham, and Elloree soils. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of 1.5 to 2.5 feet
Hazard of erosion: Slight
Shrink-swell potential: Low

Most areas are used as woodland. A few small areas are used for cropland, pasture, or urban development.

This soil is suited to row crops and small grain. The major management concerns are the wetness and a low nutrient-holding capacity. Surface and subsurface drainage systems help to control the water table. Water-control structures may be needed to maintain adequate soil moisture levels for crops. Fertilizers are more efficiently managed when applied at intervals rather than in single applications. Crop residue management helps to control wind erosion, increases the content of organic matter, and improves natural fertility.

This soil is suited to pasture. Suitable grasses include bahiagrass. The major management concern is the wetness. A surface drainage system reduces the wetness. Pasture rotation, restricted grazing during wet periods, and annual applications of fertilizer help to keep the pasture in good condition.

This soil is suited to woodland. Suitable trees include loblolly pine. The major management concerns are moderate limitations affecting the use of equipment, seedling survival, and plant competition. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is poorly suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness and a poor filtering capacity. Specially modified sewage systems may be needed. The soil is moderately limited as a site for dwellings without basements because of the wetness. Installing drainage systems around the dwellings and land shaping can reduce the wetness. The soil is severely limited as a site for lawns and landscaping because of droughtiness. Frequent irrigation is needed during dry periods to ensure the survival of lawn grasses and shrubs.

Tc—Tawcaw-Chastain complex, frequently flooded. These nearly level soils are on flood plains along the Savannah River. The landscape is mainly a series of low ridges and troughs that vary widely in width and tend to parallel the major streams. The somewhat poorly drained Tawcaw soil is on the low ridges. It is slightly higher on the landscape than the Chastain soil. The poorly drained Chastain soil is in the troughs and depressions. Individual areas of the unit generally are elongated and are 500 to 2,500 acres in size where they are not separated by streams. Individual areas of each soil range from 25 to 200 acres in size. Slopes range from 0 to 2 percent.

The Tawcaw soil makes up about 50 percent of the map unit and the Chastain soil about 40 percent. The Tawcaw and Chastain soils occur as areas so closely intermingled that mapping them separately is not practical.

A typical profile of the Tawcaw soil is as follows—

Surface layer:
0 to 9 inches—yellowish red clay that has dark reddish gray and brown mottles

Subsoil:
9 to 37 inches—pale brown clay that has light brownish gray, brownish yellow, and reddish gray mottles
37 to 70 inches—light gray clay loam that has brownish yellow and brown mottles

Major properties of the Tawcaw soil—
Permeability: Slow
Available water capacity: Moderate
Seasonal high water table: At a depth of 1.5 to 2.5 feet
Hazard of erosion: Slight
Shrink-swell potential: Moderate

Flooding: Frequent, for long periods

A typical profile of the Chastain soil is as follows—

Surface layer:
0 to 2 inches—brown clay that has yellowish brown and gray mottles

Subsoil:
2 to 45 inches—gray clay that has yellowish brown, light yellowish brown, and yellow mottles
45 to 54 inches—greenish gray clay that has gray mottles
54 to 59 inches—gray sandy clay loam that has strata of clay and loamy sand and greenish gray mottles

Substratum:
59 to 70 inches—gray coarse sand

Major properties of the Chastain soil—
Permeability: Slow
Available water capacity: Moderate
Seasonal high water table: Within a depth of 1 foot
Hazard of erosion: Slight
Shrink-swell potential: Moderate
Flooding: Frequent, for very long periods

Included with these soils in mapping are small areas of Alaga and Argent soils. Included soils make up about 10 percent of the map unit

The Tawcaw and Chastain soils are used as woodland. A few small areas are managed for wildlife.

These soils are unsuited to row crops, small grain, pasture, and building site development because of the frequent flooding and the wetness. Overcoming these limitations is costly and difficult.

These soils are well suited to bottom-land hardwoods, including red maple, sweetgum, American sycamore, water oak, and willow oak. The major management concerns are severe limitations affecting the use of equipment, seedling survival, windthrow, and plant competition. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. Seedlings can be established by natural regeneration. When winds are strong, the trees are subject to windthrow because the rooting depth is restricted by the seasonal high water table. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

UcB—Uchee sand, 2 to 6 percent slopes. This gently sloping soil is on sandy upland terraces adjacent to large drainageways. It is well drained. Individual areas commonly are elongated or irregularly shaped and are about 10 to 40 acres in size.

A typical profile of this soil is as follows—

Surface layer:
0 to 9 inches—pale brown sand that has very pale brown and gray mottles

Subsurface layer:
9 to 26 inches—light yellowish brown sand that has pockets of yellowish brown loamy sand

Subsoil:
26 to 33 inches—yellowish red sandy clay loam that has strong brown and red mottles
33 to 43 inches—mottled gray, red, brownish yellow, and dark yellowish brown sandy clay that has strata of sandy clay loam
43 to 60 inches—mottled gray, red, and yellowish brown sandy clay loam

Substratum:
60 to 75 inches—light reddish brown coarse sandy loam that has red mottles

Included with this soil in mapping are small areas of Alpin, Blanton, Bonneau, and Emporia soils. Also included are small areas of soils that have slopes of 6 to 10 percent. Included soils make up about 15 percent of the map unit.

Major soil properties—
Permeability: Moderately slow
Available water capacity: Low or moderate
Seasonal high water table: At a depth of 3.5 to 5.0 feet
Hazard of erosion: Slight
Shrink-swell potential: Moderate

Most areas are used as cropland. A few small areas are used as woodland or pasture.

This soil is poorly suited to row crops and small grain. Droughtiness and a low nutrient-holding capacity are the major management concerns. Irrigation and split applications of fertilizer minimize these limitations. Cover crops and conservation tillage increase the available water capacity, improve fertility, and reduce the hazard of wind erosion.

This soil is well suited to pasture. Suitable grasses include bahiagrass and improved bermudagrass. The droughtiness and the low nutrient-holding capacity are the major management concerns. A proper grazing system, weed control, and applications of fertilizer improve the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine and longleaf pine. The major management concerns are moderate limitations affecting the use of

equipment and seedling survival. Using wide, low-pressure tires improves the mobility of equipment on this sandy soil. Planting seedlings in a shallow furrow can increase the survival rate during dry periods.

This soil is suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness and the moderately slow permeability. Adding suitable fill material and increasing the size of the absorption field can minimize these limitations. The soil has slight limitations as a site for dwellings without basements. It is moderately limited as a site for lawns and landscaping because of the droughtiness and the low nutrient-holding capacity. Frequent irrigation during dry periods and split applications of fertilizer help to keep lawns and shrubbery in good condition.

Wa—Wahee fine sandy loam. This nearly level soil is on low stream terraces. It is somewhat poorly drained. Individual areas commonly are irregularly shaped and are about 20 to 100 acres in size. Slopes range from 0 to 2 percent.

A typical profile of this soil is as follows—

Surface layer:
0 to 5 inches—dark grayish brown fine sandy loam

Subsurface layer:
5 to 16 inches—pale olive fine sandy loam that has brownish yellow and light gray mottles

Subsoil:
16 to 24 inches—light gray clay that has brownish yellow, red, and light gray mottles
24 to 37 inches—mottled brownish yellow, red, pale yellow, and light gray clay
37 to 53 inches—pale yellow clay that has strong brown and light gray mottles
53 to 61 inches—light gray fine sandy loam that has brownish yellow mottles

Substratum:
61 to 70 inches—light gray coarse sand that has pockets of sandy clay loam and brownish yellow mottles

Included with this soil in mapping are small areas of Eulonia and Argent soils. In some areas the Argent soils are in numerous depressions 20 to 40 feet in diameter. Included soils make up about 20 percent of the map unit.

Major soil properties—
Permeability: Slow
Available water capacity: Moderate
Seasonal high water table: At a depth of 0.5 foot to 1.5 feet
Hazard of erosion: Slight
Shrink-swell potential: Moderate

Most areas are used as woodland. A few small areas are used for wildlife food plots.

This soil is suited to row crops and small grain. The wetness and the slow permeability are the major management concerns. A drainage system that includes open ditches can reduce the wetness. Conservation tillage minimizes compaction and improves tilth.

This soil is suited to pasture. Suitable grasses include bahiagrass. The major management concerns are the wetness and the slow permeability. Restricted grazing during wet periods minimizes compaction and improves the quality of the forage.

This soil is suited to woodland. Suitable trees include loblolly pine. The major management concerns are moderate limitations affecting the use of equipment and windthrow and severe limitations affecting plant competition. Using wide, low-pressure tires improves the mobility of equipment and minimizes compaction and rutting. Because of the equipment limitation, the trees should be harvested only during dry periods. Chopping and harrowing can minimize plant competition and increase the seedling survival rate.

This soil is poorly suited to building site development. It is severely limited as a site for septic tank absorption fields because of the wetness and the slow permeability. Effluent should be pumped to a suitable site. The soil is severely limited as a site for dwellings without basements and for lawns and landscaping because of the wetness. Adding fill material around buildings, installing a surface drainage system, and land shaping help to move excess surface water away from dwellings and reduce the wetness in areas used for lawns and landscaping.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to food, feed, forage, fiber, and oilseed crops. It may be cultivated land, pasture, woodland, or other land, but it is not urban or built-up land, public land, or water areas. It either is used for food or fiber crops or is available for those crops. The soil qualities, growing season, and moisture supply are those needed for a well managed soil to produce a sustained high yield of crops in an economic manner. Prime farmland produces the highest yields with minimal expenditure of energy and economic resources, and farming it results in the least damage to the environment.

Prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The level of acidity or alkalinity is acceptable. Prime farmland has few or no rocks and is permeable to water and air. It is not excessively erodible or saturated with water for long periods and is not frequently flooded during the growing season. The slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

The map units in the survey area that are considered prime farmland are listed at the end of this section. This list does not constitute a recommendation for a particular land use. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Some soils that have a seasonal high water table qualify as prime farmland only in areas where this limitation has been overcome by drainage measures. The need for these measures is indicated after the map unit name. Onsite evaluation is needed to determine whether or not the limitation has been overcome by corrective measures.

The map units that meet the requirements for prime farmland are:

CaA	Cahaba loamy sand, 0 to 2 percent slopes
CaB	Cahaba loamy sand, 2 to 6 percent slopes
EpB	Emporia loamy sand, 2 to 6 percent slopes
EuA	Eulonia fine sandy loam, 0 to 2 percent slopes
EuB	Eulonia fine sandy loam, 2 to 6 percent slopes
GoA	Goldsboro loamy sand, 0 to 2 percent slopes
Ly	Lynchburg loamy fine sand (where drained)
NeA	Nansemond loamy sand, 0 to 2 percent slopes
NoA	Noboco loamy sand, 0 to 2 percent slopes
NoB	Noboco loamy sand, 2 to 6 percent slopes
NrA	Norfolk loamy sand, 0 to 2 percent slopes
NrB	Norfolk loamy sand, 2 to 6 percent slopes

Use and Management of the Soils

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

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

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

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

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

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

Crops and Pasture

Gene E. Hardee, conservation agronomist, Natural Resources 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 Natural Resources 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 the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

About 100,000 acres in Hampton County was used for crops and pasture in 1982. Of this total, about 90,000 was used for field crops, mainly soybeans and corn; 5,000 acres was used for permanent pasture; and 1,000 acres was used for orchard crops, mainly pecans and peaches.

The field crops that are suited to the soils and climate of the county include many that are not now commonly grown. Corn and soybeans are the principal row crops, but a significant acreage is used for cotton, peanuts, or watermelons. Wheat, oats, and rye are the most common close-growing crops. Coastal bermudagrass and bahiagrass are grown for pasture and hay.

The specialty crops grown in Hampton County are vegetables and small fruits. A significant acreage is used for vegetable crops, such as cucumbers, melons, and peas, and for small fruits, such as grapes, peaches, pecans, and blueberries.

The soils that are characterized by good natural drainage and a moderate available water capacity and that warm up early in the spring are especially well suited to many vegetables and small fruits. Examples are Emporia, Eulonia, Noboco, and Norfolk soils. If a well designed drainage system is installed, Goldsboro, Lynchburg, Nansemond, and Wahee soils are especially well suited to the vegetables planted later in the spring. Crops generally can be planted and harvested earlier on all of these soils than on the other soils in the county.

Most of the well drained soils in the county are suited

Figure 4.—A peach orchard in an area of Norfolk loamy sand, 0 to 2 percent slopes.

to orchards and nursery plants (fig. 4). The soils in low areas where frost is frequent and air drainage is poor, however, generally are poorly suited to early vegetables and orchards.

The soils in the county have good potential for increased production of food. In 1982, more than 175,000 acres of potentially good cropland was used as woodland or pasture. In addition to the reserve productive capacity represented by this land, food production could be increased by extending better crop production technology to all of the cropland in the county.

In general, the soils in the county that are well suited to crops also are well suited to urban development. In 1982, an estimated 4,600 acres in the county was urban or built-up land. The acreage of this land has been growing at the rate of about 100 acres per year.

Water erosion is a major management concern on about 2.5 percent of the total land area in the county, or on less than 5 percent of the cropland. In most areas where erosion is a hazard, slopes are more than 2 percent.

Loss of the surface layer through erosion is damaging because it reduces the productivity of soils and results in sedimentation. Productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging to soils that have a subsoil of clayey material or of sandy clay loam, such as Eulonia, Emporia, and Norfolk soils. Erosion also reduces the productivity of deep, sandy soils, such as Alaga, Alpin, Autryville, Blanton, Bonneau, Lakeland, and Uchee soils, by removing the finer textured particles from the surface layer. Erosion on farmland results in the sedimentation of streams and decreases the quality of water for municipal use, for recreation, and for fish and wildlife.

Erosion-control practices generally provide a protective cover, help to control runoff, and increase the rate of water infiltration. A cropping system that keeps a plant cover on the soil for extended periods can hold soil losses to an amount that does not reduce the productive capacity of the soils.

Terraces can help to control runoff and erosion by reducing the length of slopes. In Hampton County, however, most areas of gently sloping soils are small. As a result, diversions and grassed waterways are

commonly the best structural means of controlling erosion.

Contour farming and stripcropping reduce the runoff rate and the hazard of erosion. They are especially practical on gently sloping soils, such as Alaga, Alpin, Blanton, Bonneau, Lakeland, and Uchee soils. The instability of the sandy material in these soils limits the suitability for structural erosion-control measures.

Minimizing tillage and leaving crop residue on the surface increase the rate of water infiltration and reduce the hazards of runoff and erosion. In nearly all areas of the county, the hazard of sheet and rill erosion can be reduced by leaving crop residue on the surface.

In the more sloping areas on livestock farms, which require pasture and hay, including grasses and legumes in the cropping system helps to control erosion and provides nitrogen for the next crop in the sequence. In many of the smaller areas that are eroding, conversion to woodland or wildlife food plots may be the most practical means of controlling erosion.

Wind erosion is a hazard on Blanton, Alaga, Alpin, Autryville, Bonneau, Centenary, Chipley, Foxworth, Lakeland, Norfolk, and Uchee soils. It can damage these soils if extensive areas are left unprotected. It also can damage vegetation, especially young, tender plants. Annual wind-control strips, windbreaks, cover crops, and a method of tillage that leaves the surface rough are needed on these soils.

Fall plowing is generally not a suitable measure on gently sloping soils that are subject to water erosion or on soils that are subject to wind erosion. If the soils are tilled in the fall, a significant amount of crop residue should be left on the surface or the tilled area should be planted to a cover crop.

Information about the design of erosion-control measures for each kind of soil is contained in the Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Soil drainage is the major management need on about 28 percent of the acreage used for crops and pasture in the county. Brookman, Byars, Elloree, Grifton, Pungo, Osier, Pickney, and Rutlege soils are naturally so wet that production of the crops commonly grown in the county is generally not possible. These poorly drained or very poorly drained soils make up about 146,000 acres in the county.

Unless a drainage system is installed, wetness significantly damages crops on the somewhat poorly drained Lynchburg, Wahee, Seagate, and Ocilla soils; on the poorly drained Coxville, Pelham, Plummer, and Rains soils; and on the very poorly drained Byars, Nakina, and Pantego soils. In some years crops may be damaged on the moderately well drained Goldsboro and Nansemond soils.

Grifton, Elloree, Nakina, Osier, Pickney, Tawcaw, and Chastain soils are subject to flooding. Argent, Brookman, Byars, Pantego, Pickney, Rembert, and Rutlege soils are subject to ponding.

The best design of surface and subsurface drainage systems is determined to a large extent by the crops to be grown. If row crops are to be grown, a combination of surface drains and tile drains is needed in most areas of the somewhat poorly drained soils that can be drained sufficiently for row crops. For vegetables and other specialty crops, which require intensive farming practices, a combination of surface and subsurface drains is needed in most areas of moderately well drained soils. Tile drainage is very slow in Argent, Byars, Chastain, Coxville, Tawcaw, and Wahee soils. If tile drains are installed in Centenary, Chipley, Echaw, Nansemond, Pelham, and Seagate soils, a filter is needed to keep sand from entering the tile lines.

A low available water capacity is a limitation in areas of Alaga, Alpin, Blanton, Centenary, Echaw, Foxworth, and Lakeland soils. This limitation can be minimized by crop residue management, the selection of appropriate crops, and irrigation. These soils are well suited to pasture grasses, grain sorghum, rye, and watermelons. Because nutrients are rapidly leached from the soils, frequent applications of fertilizer and lime are needed for good plant growth.

Fertility is naturally low in many of the soils in the county. Plants on most of the soils, however, respond well to additions of fertilizer and lime.

Most of the soils in the county range from very strongly acid to slightly acid. Because of the natural acidity, regular applications of lime are needed before most crops can grow well. The levels of available phosphorus and potash are naturally low in most of the soils.

Additions of lime and fertilizer on any soil should be based on the results of soil tests, the needs of the crop, and the desired level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to be applied.

Most of the soils used for crops in the county have a surface layer of fine sandy loam, sandy loam, loamy fine sand, or loamy sand. Tilth is generally good in most of the well drained to somewhat poorly drained soils, which can be worked throughout a wide range of moisture conditions.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic

factors. The land capability classification also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

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

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

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. 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, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by 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 have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

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

The acreage of soils in each capability class and subclass is shown in table 6. The capability classification of each map unit is given in table 5.

Woodland Management and Productivity

Norman Runge, forester, Natural Resources Conservation Service, helped prepare this section.

About 247,770 acres in Hampton County, or nearly 70 percent of the total acreage, is used as commercial woodland (fig. 5). The lumber industry is of major importance in the county.

Soils vary in their ability to produce trees. Available water capacity and depth of the root zone have major

Figure 5.—Water-tolerant hardwoods in an area of Pungo muck, ponded.

effects on tree growth. Fertility and texture also influence tree growth. Elevation, aspect, and climate determine the kinds of trees that can grow on a site. 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 applications of fertilizer than others, and some are more susceptible to landslides and erosion after roads are built and timber is harvested. Some soils require special reforestation efforts. In the section "Detailed Soil Map Units," the description of each map unit in the survey area suitable for timber includes information about productivity, limitations in harvesting timber, and management concerns in producing timber. Table 7 summarizes this forestry information and rates the soils for a number of factors to be considered in management. *Slight, moderate,* and *severe* are used to indicate the degree of the major soil limitations to be considered in forest management.

Ratings of the *erosion hazard* indicate the probability that damage may occur if site preparation or harvesting activities expose the soil. The risk is *slight* if no particular preventive measures are needed under ordinary conditions; *moderate* if erosion-control measures are needed for particular silvicultural activities; and *severe* if special precautions are needed to control erosion for most silvicultural activities. Ratings of moderate or severe indicate the need for construction of higher standard roads, additional maintenance of roads, additional care in planning harvesting and reforestation activities, or the use of special equipment.

Ratings of *equipment limitation* indicate limits on the use of forest management equipment, year-round or seasonal, because of such soil characteristics as slope,

wetness, stoniness, and susceptibility of the surface layer to compaction. As slope gradient and length increase, it becomes more difficult to use wheeled equipment. On the steeper slopes, tracked equipment is needed. On the steepest slopes, even tracked equipment cannot be operated and more sophisticated systems are needed. The rating is *slight* if equipment use is restricted by wetness for less than 2 months and if special equipment is not needed. The rating is *moderate* if slopes are so steep that wheeled equipment cannot be operated safely across the slope, if wetness restricts equipment use from 2 to 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. The rating is *severe* if slopes are so steep that tracked equipment cannot be operated safely across the slope, if wetness restricts equipment use for more than 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. Ratings of moderate or severe indicate a need to choose the best suited equipment and to carefully plan the timing of harvesting and other management activities.

Ratings of *seedling mortality* refer to the probability of the death of naturally occurring or properly planted seedlings of good stock in periods of normal rainfall, as influenced by kinds of soil or topographic features. Seedling mortality is caused primarily by too much water or too little water. The factors used in rating a soil for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, rooting depth, and the aspect of the slope. The mortality rate generally is highest on soils that have a sandy or clayey surface layer. The risk is *slight* if, after site preparation, expected mortality is less than 25 percent; *moderate* if expected mortality is between 25 and 50 percent; and *severe* if expected mortality exceeds 50 percent. Ratings of moderate or severe indicate that it may be necessary to use containerized or larger than usual planting stock or to make special site preparations, such as bedding, furrowing, installing a surface drainage system, and providing artificial shade for seedlings. Reinforcement planting is often needed if the risk is moderate or severe.

Ratings of *windthrow hazard* indicate the likelihood that trees will be uprooted by the wind. A restricted rooting depth is the main reason for windthrow. The rooting depth can be restricted by a high water table, a fragipan, or bedrock or by a combination of such factors as wetness, texture, structure, and depth. The risk is *slight* if strong winds cause trees to break but do not uproot them; *moderate* if strong winds cause an occasional tree to be blown over and many trees to break; and *severe* if moderate or strong winds commonly blow trees over. Ratings of moderate or severe indicate that care is needed in thinning or that the stand should not be thinned at all. Special equipment may be needed to prevent damage to shallow root systems in partial cutting operations. A plan for the periodic removal of windthrown trees and the maintenance of a road and trail system may be needed.

Ratings of *plant competition* indicate the likelihood of the growth or invasion of undesirable plants. Plant competition is more severe on the more productive soils, on poorly drained soils, and on soils having a restricted root zone that holds moisture. The risk is *slight* if competition from undesirable plants hinders adequate natural or artificial reforestation but does not necessitate intensive site preparation and maintenance. The risk is *moderate* if competition from undesirable plants hinders natural or artificial reforestation to the extent that intensive site preparation and maintenance are needed. The risk is *severe* if competition from undesirable plants prevents adequate natural or artificial reforestation unless the site is intensively prepared and maintained. A rating of moderate or severe indicates the need for site preparation to ensure the development of an adequately stocked stand. Managers must plan site preparation measures to ensure reforestation without delays.

The *potential productivity* of *common trees* on a soil is expressed as a *site index* and a *volume* number. Common trees are listed in the order of their observed general occurrence. Generally, only two or three tree species dominate. The first tree listed for each soil is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands.

The *volume* is the yield likely to be produced by the most important trees, expressed in cubic feet per acre per year calculated at the age of culmination of mean annual increment.

Trees to plant are those that are used for reforestation or, under suitable conditions, natural regeneration. They are suited to the soils and can produce a commercial wood crop. The desired product, topographic position (such as a low, wet area), and

personal preference are three factors among many that can influence the choice of trees for use in reforestation.

Recreation

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 8, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 8 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the 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 surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water (fig. 6). Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

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

Figure 6.—Deer grazing winter wheat in an area of Eulonia fine sandy loam, 0 to 2 percent slopes. Photo courtesy of Lewis Rogers, district wildlife biologist, South Carolina Wildlife and Marine Resources Department.

satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

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

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

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

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

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone,

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

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

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

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

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

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, 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 wild turkey, 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. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

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

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a 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 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, 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 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, shrinking and swelling, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, 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, 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 11 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 11 also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and 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, 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 11 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, 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 should be considered.

The ratings in table 11 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, and soil reaction affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

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

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 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as 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 to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

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

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the 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 a 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 have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 12, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

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

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale 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, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a 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 or stones, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated 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 for each soil the restrictive features that affect drainage, irrigation, 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.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

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 quality of the water as inferred from 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 the potential for 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. 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.

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, 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.

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

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages 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 about 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 *(3)* and the system adopted by the American Association of State Highway and Transportation Officials *(2)*.

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

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

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

Rock fragments 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.

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

Physical and Chemical Properties

Table 15 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

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

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

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at ⅓-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 downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. 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 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 in tons per acre per year. The 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 0.05 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 without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion. Soils are grouped according to the following distinctions:

1. Coarse sands, sands, fine sands, and very fine sands. These soils are generally not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, and sapric soil material. These soils are very highly erodible. Crops can be grown if intensive measures to control wind erosion are used.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams. These soils are erodible. Crops can be grown if intensive measures to control wind erosion are used.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control wind erosion are used.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material. These soils are slightly erodible. Crops can be grown if measures to control wind erosion are used.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay. These soils are very slightly erodible. Crops can be grown if ordinary measures to control wind erosion are used.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material. These soils are very slightly erodible. Crops can be grown if ordinary measures to control wind erosion are used.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 16 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the infiltration of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

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

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

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

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

If a soil is assigned to two hydrologic groups in table 16, the first letter is for drained areas and the second is for undrained areas.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent

slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, nor is water in swamps, marshes, or closed depressions.

Table 16 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); and *frequent* that it occurs often under normal weather conditions (the chance of flooding is more than 50 percent in any year). Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

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

Also considered 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 estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 16 are depth to the seasonal high water table; the kind of water table—that is, perched or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 16.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. Table 16 shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

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

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

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

Physical, Chemical, and Mineralogical Properties of Selected Soils

Bill R. Smith, professor, Department of Agronomy and Soils, South Carolina Agricultural Experiment Station, Clemson University, prepared this section.

Values for the physical, chemical, and mineralogical properties of many soils in the county are shown in table 17. The soils were sampled at carefully selected sites. The pedons are representative of the series. They are the pedons described in the section "Soil Series and Their Morphology" or are similar to those pedons. The samples were analyzed by the Soil Characterization Laboratory, South Carolina Agricultural Experiment Station. Because of differences between field and laboratory procedures, some of the laboratory data for texture and pH differ from the data given in the typical pedons.

The methods used in obtaining the data are indicated

in the list that follows. The codes in parentheses refer to published methods *(8).*

Particle-size distribution—(3A1).
Exchangeable bases—ammonium acetate, pH 7.0 (5B1a); calcium (6N2a); magnesium (6O2d); sodium (6P2b); potassium (6Q2b).
Exctractable acidity—barium chloride-triethanolamine (6H1a).
Cation-exchange capacity—sum of cations (5A3).
Cation-exchange capacity—ammonium acetate, pH 7.0 (5A1b).
Base saturation—sum of cations (5C3).
Exchangeable aluminum—potassium chloride (6G1e).
Aluminum saturation—exchangeable aluminum/ECEC.
Effective cation-exchange capacity—exchangeable bases plus exchangeable aluminum.
pH—1:1 water dilution (8C1a).
Clay mineralogy—x-ray diffraction (7A2a); differential scanning calorimetry (7A3).

The content of exchangeable bases is rather low in most of the soils and tends to decrease to very low with increasing depth. The content tends to decrease because many of the soils are in cultivated areas where lime and fertilizer have been applied. The rest of the soils are in forested areas, where the decrease is the result of nutrient recycling by the native vegetation. Even if lime and fertilizer are applied, a relatively low content of nutrients is expected in the soils of this county and in other areas where the climate is warm and humid. This climate favors the formation of leached, acid soils that are low in natural fertility. An exception is the Elloree soils on flood plains. These soils are Ochraqualfs. They formed in material having an appreciable amount of exchangeable bases. The content of these bases is relatively high in the lower part of the solum.

If pH values are less than 5.5, the content of exchangeable aluminum is high enough to be toxic to some plants in nearly all of the horizons of the soils listed in table 17, except for Cahaba soils. Aluminum saturation levels that are more than 30 percent of the effective cation-exchange capacity are toxic to some crops. These levels generally are fairly high in mineral soils that have pH values of 5.0 or less. In many of the soils listed in this table, the levels are nearly 50 percent or more than 50 percent at or directly below the top of the argillic horizon. Levels of 50 to more than 60 percent are toxic to many crops and severely limit the rooting depth. The levels are especially high throughout Coxville, Lynchburg, Ocilla, Pelham, Pungo, and Rains soils. Elloree soils have high levels in the upper part. Applying lime so that the pH value reaches 6.0 can quickly reduce the amount of exchangeable aluminum to an extremely low level in the surface layer. The horizons below this layer would be less affected by the applications of lime. As a result, the level of exchangeable aluminum would be reduced more slowly and to a lesser extent.

The highly weathered nature of most of the soils listed in table 17 is reflected in the clay mineralogy. The clay fraction in all of the soils is dominated by kaolinite and has lesser amounts of vermiculite, hydroxy-Al interlayered with vermiculite, montmorillonite, and gibbsite. The montmorillonite generally is inherited from the parent material. A few of the soils have a kandic horizon.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(7)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 18 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is 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, 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. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine, mixed, 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. The texture of the surface layer or of the substratum can differ within a series.

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. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" *(9)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(7)*. 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."

Alaga Series

The Alaga series consists of well drained, rapidly permeable soils that formed in sandy marine sediments.

These nearly level and gently sloping soils are on sandy upland terraces. Slopes range from 0 to 6 percent. The soils are classified as thermic, coated Typic Quartzipsamments.

Alaga soils are associated on the landscape with Autryville, Blanton, Bonneau, Chipley, and Ocilla soils. Autryville, Bonneau, and Ocilla soils are Ultisols and are in an Arenic subgroup. Blanton soils are Ultisols and are in a Grossarenic subgroup. Chipley soils have a lower content of silt and clay in the particle-size control section than the Alaga soils.

Typical pedon of Alaga sand, moderately wet, 0 to 6 percent slopes, about 8 miles north of Hampton, about 0.7 mile southwest of the junction of South Carolina Highways 13 and 28, about 150 feet southeast of South Carolina Highway 28; at an elevation of 100 feet:

Ap—0 to 10 inches; brown (10YR 4/3) sand; weak fine granular structure; very friable; common fine roots; slightly acid; abrupt smooth boundary.

C1—10 to 32 inches; strong brown (7.5YR 5/6) sand; weak medium granular structure; very friable; few fine roots; many coated sand grains; moderately acid; gradual smooth boundary.

C2—32 to 46 inches; reddish yellow (7.5YR 6/8) sand; common medium distinct very pale brown (10YR 7/3) mottles; weak medium granular structure; very friable; common coated sand grains; strongly acid; gradual wavy boundary.

C3—46 to 66 inches; reddish yellow (7.5YR 6/6) sand; common medium distinct brownish yellow (10YR 6/8) and common medium distinct white (10YR 8/2) mottles; single grained; loose; strongly acid; gradual wavy boundary.

C4—66 to 77 inches; white (10YR 8/1) sand; common medium distinct very pale brown (10YR 7/3) mottles; single grained; loose; strongly acid.

The sandy material is 80 to 100 inches thick. The soils are very strongly acid to moderately acid throughout, except for the surface layer in limed areas. The content of silt and clay in the 10- to 40-inch control section ranges from 10 to 15 percent.

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

The C horizon has hue of 7.5YR or 10YR and value of 4 to 8. It has chroma of 3 to 8 in the upper part and chroma of 1 to 8 in the lower part. In most pedons this horizon has mottles with chroma of 2 or less and uncoated sand grains below a depth of 40 inches. It is sand, coarse sand, loamy coarse sand, loamy sand, or loamy fine sand.

Alpin Series

The Alpin series consists of excessively drained, rapidly permeable soils that formed in thick beds of sandy eolian or marine deposits. These nearly level and gently sloping soils are on sandy upland terraces adjacent to flood plains. Slopes range from 0 to 6 percent. The soils are classified as thermic, coated Typic Quartzipsamments.

Alpin soils are associated on the landscape with Alaga, Autryville, Blanton, Chipley, Foxworth, and Lakeland soils. Alaga soils have a higher content of silt and clay in the particle-size control section than the Alpin soils. Autryville soils are Ultisols and are in an Arenic subgroup. Blanton soils are Ultisols and are in a Grossarenic subgroup. Chipley, Foxworth, and Lakeland soils do not have lamellae.

Typical pedon of Alpin sand, 0 to 6 percent slopes, about 4.5 miles northwest of Varnville on South Carolina Highway 63, about 0.3 mile north on South Carolina Highway 769, about 0.2 mile on an unimproved road, about 50 feet west of the road; at an elevation of 130 feet:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) sand; weak fine granular structure; very friable; common medium and fine roots; slightly acid; clear smooth boundary.

E1—7 to 19 inches; yellow (10YR 7/6) sand; single grained; loose; common medium and fine roots; few uncoated sand grains; slightly acid; gradual wavy boundary.

E2—19 to 33 inches; very pale brown (10YR 7/4) sand; common medium distinct strong brown (7.5YR 5/6) mottles; single grained; loose; few fine roots; many uncoated sand grains; slightly acid; gradual wavy boundary.

E3—33 to 60 inches; strong brown (7.5YR 5/6) sand; common medium distinct very pale brown (10YR 7/3) mottles; weak fine granular structure; very friable; few fine roots; few small pockets of strong brown (7.5YR 5/8) loamy sand; strongly acid; gradual wavy boundary.

E and Bt—60 to 80 inches; white (10YR 8/2) sand; single grained; loose; common strong brown (7.5YR 5/8) discontinuous lamellae of loamy sand about 0.25 to 1 inch thick; coated sand grains in the lamellae; strongly acid.

The thickness of the solum ranges from 80 to more than 100 inches. The soils are strongly acid to slightly acid throughout, except for the surface layer in limed areas. Depth to the uppermost lamellae ranges from 40 to 70 inches. The combined thickness of the lamellae ranges from ⅛ to 1 inch.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. It is sand or fine sand.

The E horizon has hue of 7.5YR or 10YR, value of 5 to 8, and chroma of 3 to 8. It is sand or fine sand. In most pedons it has common pockets of uncoated sand.

The E part of the E and Bt horizon has hue of 10YR, value of 7 or 8, and chroma of 1 to 3. It is coarse sand, sand, or fine sand. The B part has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 to 8. It is loamy sand or loamy fine sand.

Argent Series

The Argent series consists of poorly drained, slowly permeable soils that formed in clayey alluvial and marine sediments. These nearly level soils are in depressions and drainageways on low stream terraces, generally at an elevation of less than 45 feet above sea level. Slopes range from 0 to 2 percent. The soils are classified as fine, mixed, thermic Typic Ochraqualfs.

Argent soils are associated on the landscape with Brookman, Chastain, Eulonia, and Wahee soils. Brookman soils have an umbric epipedon. Chastain soils are Entisols and are frequently flooded. Eulonia and Wahee soils are Ultisols.

Typical pedon of Argent fine sandy loam, ponded, about 4.1 miles northwest of Garnett on South Carolina Highway 20, about 3.0 miles southwest on an unimproved county road, about 700 feet behind the Hamilton Ridge clubhouse, about 100 feet south of the road; at an elevation of 40 feet:

A—0 to 5 inches; gray (10YR 5/1) fine sandy loam; weak medium subangular blocky structure; very friable; common fine and medium roots; few fine tubular pores; strongly acid; gradual wavy boundary.

Btg1—5 to 18 inches; gray (10YR 5/1) clay; common medium distinct yellowish brown (10YR 5/8) and few fine prominent yellowish red (5YR 5/8) mottles; strong medium subangular blocky structure; firm; few fine and medium roots; few fine tubular pores; few distinct clay films on faces of peds; moderately acid; gradual wavy boundary.

Btg2—18 to 41 inches; gray (10YR 5/1) clay; many medium distinct brownish yellow (10YR 6/8) mottles; strong medium subangular blocky structure; very firm; few fine roots; few fine tubular pores; common prominent clay films on faces of peds; moderately acid; gradual wavy boundary.

Btg3—41 to 59 inches; light brownish gray (2.5Y 6/2) clay; common medium distinct brownish yellow (10YR 6/6) and few fine prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; very firm; common distinct clay films on faces of peds; few concretions of manganese; few concretions of calcium carbonate; neutral; gradual wavy boundary.

BCg—59 to 65 inches; light gray (5Y 7/2) clay; common medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; firm; common concretions of manganese; common concretions of calcium carbonate; neutral.

The thickness of the solum ranges from 40 to 70 inches. The soils are very strongly acid to moderately acid in the A and E horizons and moderately acid to neutral in the B horizon. Some pedons have few or common concretions of manganese or calcium carbonate.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is sandy loam, fine sandy loam, or clay loam.

The E horizon, if it occurs, has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. It is sandy loam or fine sandy loam.

The Btg horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. In most pedons it has mottles in shades of red, brown, or yellow. It is dominantly clay loam, sandy clay, clay, or silty clay. In some pedons, however, it has coatings or pockets of sand, loamy sand, or loamy fine sand between peds.

The BCg horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. In some pedons it has mottles in shades of brown or yellow. It is dominantly sandy clay loam, clay loam, sandy clay, or clay. In most pedons, however, it has coatings or pockets of sandy material between peds.

The Cg or 2Cg horizon has hue of 10YR to 5Y, value of 4 to 8, and chroma of 1 or 2. It is sand or loamy sand or is stratified with various textures.

Autryville Series

The Autryville series consists of well drained, moderately permeable soils that formed in sandy and loamy marine sediments. These nearly level and gently sloping soils are on sandy upland terraces. Slopes range from 0 to 6 percent. The soils are classified as loamy, siliceous, thermic Arenic Paleudults.

Autryville soils are associated on the landscape with Alaga, Blanton, Bonneau, Norfolk, Noboco, and Ocilla soils. Alaga soils do not have an argillic horizon. Blanton soils are in a Grossarenic subgroup. Bonneau soils do not have a bisequal profile. Norfolk and Noboco soils have an argillic horizon within 20 inches of the surface. Ocilla soils have a seasonal high water table that is closer to the surface than that in the Autryville soils.

Typical pedon of Autryville sand, 0 to 2 percent

slopes, about 9 miles north of Hampton, about 1.7 miles northwest of the junction of U.S. Highway 601 and South Carolina Highway 538, about 600 feet southwest of South Carolina Highway 621, along a field border; at an elevation of 112 feet:

Ap—0 to 10 inches; brown (10YR 5/3) sand; weak fine granular structure; very friable; few fine roots; moderately acid; clear smooth boundary.

E1—10 to 14 inches; light yellowish brown (10YR 6/4) sand; single grained; loose; few fine roots; moderately acid; clear smooth boundary.

E2—14 to 32 inches; very pale brown (10YR 7/3) sand; single grained; loose; few fine roots; moderately acid; clear smooth boundary.

Bt—32 to 47 inches; reddish yellow (7.5YR 6/8) sandy loam; weak medium subangular blocky structure; friable; few fine roots; sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.

E′—47 to 54 inches; yellow (10YR 7/6) sand; single grained; loose; few uncoated sand grains; very strongly acid; gradual wavy boundary.

B′t1—54 to 62 inches; brownish yellow (10YR 6/6) sandy clay loam; common fine distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine tubular pores; very few faint clay films along old root channels; very strongly acid; gradual wavy boundary.

B′t2—62 to 70 inches; mottled light yellowish brown (10YR 6/4), gray (10YR 6/1), strong brown (7.5YR 5/8), and red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine tubular pores; few distinct clay films on faces of peds; very strongly acid.

The thickness of the solum ranges from 70 to more than 80 inches. The soils are very strongly acid to moderately acid throughout, except for the surface layer in limed areas.

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

The E horizon has hue of 10YR, value of 6 or 7, and chroma of 3 to 6. It has few or common uncoated sand grains in some pedons. It is sand or fine sand.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 4 to 8. It has few or common mottles in shades of red or brown in some pedons. It is sandy loam, fine sandy loam, or sandy clay loam.

The E′ horizon has hue of 10YR, value of 6 or 7, and chroma of 4 to 8. It has few or common mottles in shades of brown or yellow in some pedons. It has common uncoated sand grains in most pedons. It is sand, fine sand, loamy sand, or loamy fine sand.

The B′t horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. In some pedons it has mottles in shades of red, brown, yellow, or gray in the lower part. This horizon is sandy loam or sandy clay loam.

Blanton Series

The Blanton series consists of somewhat excessively drained, moderately permeable soils that formed in sandy and loamy marine sediments. These nearly level to strongly sloping soils are on sandy upland terraces adjacent to drainageways and Carolina bays. Slopes range from 0 to 10 percent. The soils are classified as loamy, siliceous, thermic Grossarenic Paleudults.

Blanton soils are associated on the landscape with Alaga, Alpin, Autryville, Bonneau, Foxworth, Lakeland, Norfolk, and Ocilla soils. Alaga, Foxworth, and Lakeland soils are Entisols. Alpin soils have lamellae at a depth of 40 to 70 inches. Autryville, Bonneau, and Ocilla soils are in an Arenic subgroup. Norfolk soils have a subsoil within 20 inches of the surface.

Typical pedon of Blanton fine sand, 0 to 2 percent slopes, about 7 miles northeast of Brunson, about 0.3 mile north of the junction of an unimproved county road and South Carolina Highway 538, west of the county road, about 15 feet northwest of power pole number 101-L25-R4; at an elevation of 115 feet:

Ap—0 to 7 inches; pale brown (10YR 6/3) fine sand; single grained; loose; common fine roots; strongly acid; clear smooth boundary.

E1—7 to 35 inches; very pale brown (10YR 7/4) fine sand; single grained; loose; common fine roots; strongly acid; gradual smooth boundary.

E2—35 to 42 inches; very pale brown (10YR 8/3) fine sand; common medium faint very pale brown (10YR 7/4) mottles; single grained; loose; few fine roots; common uncoated sand grains; strongly acid; gradual wavy boundary.

Bt1—42 to 56 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct yellowish brown (10YR 5/8) and few medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine tubular pores; few faint clay films on faces of peds and along pores; few concretions of ironstone and nodules of plinthite; strongly acid; gradual wavy boundary.

Bt2—56 to 70 inches; mottled light gray (10YR 7/1), strong brown (7.5YR 5/8), brownish yellow (10YR 6/8), and red (10R 4/8) sandy clay loam; moderate

medium subangular blocky structure in most parts but massive in the grayish part; friable; few fine tubular pores; few distinct clay films on faces of peds; few fine nodules of plinthite; very strongly acid.

The thickness of the solum ranges from 60 to more than 80 inches. The soils are very strongly acid to moderately acid throughout, except for the surface layer in limed areas. Depth to the argillic horizon ranges from 40 to 80 inches. The content of quartz gravel and ironstone concretions ranges from 0 to 5 percent in the A and Bt horizons and from 0 to 20 percent in the E horizon.

The A or Ap horizon has hue of 10YR, value of 4 to 6, and chroma of 1 to 3. It is sand, fine sand, loamy sand, or loamy fine sand.

The E horizon has hue of 7.5YR or 10YR, value of 5 to 8, and chroma of 2 to 8. In most pedons it has few to many pockets of uncoated sand grains. It is sand, fine sand, loamy sand, or loamy fine sand.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 3 to 8. In some pedons it has mottles in shades of red, brown, yellow, or gray in the lower part. This horizon is sandy loam or sandy clay loam.

The Btg horizon, if it occurs, has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. In most pedons it has few or common mottles in shades of red, brown, or yellow. It is sandy loam, sandy clay loam, or sandy clay.

Bonneau Series

The Bonneau series consists of well drained, moderately permeable soils that formed in loamy marine sediments. These nearly level and gently sloping soils are on sandy upland terraces. Slopes range from 0 to 6 percent. The soils are classified as loamy, siliceous, thermic Arenic Paleudults.

Bonneau soils are associated on the landscape with Autryville, Blanton, Goldsboro, Noboco, Norfolk, and Ocilla soils. Autryville soils have a bisequal profile. Blanton soils are in a Grossarenic subgroup. Goldsboro, Noboco, and Norfolk soils have an argillic horizon within 20 inches of the surface. Ocilla soils are in an Aquic subgroup.

Typical pedon of Bonneau fine sand, 0 to 2 percent slopes, about 3.5 miles northeast of Brunson on South Carolina Highway 38, about 1 mile north on an unimproved road across Caw Caw Swamp, about 500 feet east of the road, in a cultivated field; at an elevation of 108 feet:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) fine sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

E—9 to 25 inches; very pale brown (10YR 7/4) fine sand; single grained; loose; common fine roots; common uncoated sand grains; strongly acid; clear wavy boundary.

Bt1—25 to 46 inches; reddish yellow (7.5YR 6/8) sandy clay loam; common fine distinct yellow (10YR 7/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine tubular pores; few faint clay films along pores; very strongly acid; gradual wavy boundary.

Bt2—46 to 62 inches; mottled red (2.5YR 5/6), reddish brown (2.5YR 4/4), brown (7.5YR 5/4), and gray (10YR 6/1) sandy clay loam; moderate medium subangular blocky structure; firm; few fine roots; few fine tubular pores; many distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt3—62 to 70 inches; mottled gray (10YR 6/1), brownish yellow (10YR 6/8), dark reddish brown (2.5YR 3/4), and red (10YR 4/8) sandy clay loam; few strata of sandy loam and loamy sand; weak medium subangular blocky structure; friable; few distinct clay films on faces of peds; very strongly acid.

The thickness of the solum ranges from 60 to 80 inches. The soils are very strongly acid to moderately acid throughout, except for the surface layer in limed areas. Fine and medium concretions of ironstone and nodules of plinthite are in the Bt horizon in some pedons.

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

The E horizon has hue of 10YR, value of 6 or 7, and chroma of 4 to 6. It has few or common uncoated sand grains and mottles in shades of yellow or brown in some pedons. It is sand, fine sand, loamy sand, or loamy fine sand.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. In most pedons it has few or common mottles in shades of red, brown, or yellow and has mottles in shades of gray below a depth of 40 inches. In some pedons it has mottles in shades of red, brown, yellow, or gray in the lower part. This horizon is dominantly sandy loam or sandy clay loam, but in some pedons the lower part is sandy clay.

The Btg horizon, if it occurs, has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. It has few to many mottles in shades of red, yellow, brown, or gray in most pedons. It is dominantly sandy loam, sandy clay loam, or sandy clay, but in some pedons it has strata of sand or loamy sand.

Brookman Series

The Brookman series consists of very poorly drained, slowly permeable soils that formed in clayey and loamy marine sediments. These nearly level soils are in depressions and drainageways on low terraces. Slopes range from 0 to 2 percent. The soils are classified as fine, mixed, thermic Typic Umbraqualfs.

Brookman soils are associated on the landscape with Argent, Eulonia, and Wahee soils. Argent soils have an ochric epipedon. Eulonia and Wahee soils are Ultisols.

Typical pedon of Brookman clay loam, ponded, about 1.8 miles west of Garnett on South Carolina Highway 20, about 1 mile south on an unimproved county road, about 1 mile southwest on a paper company road, about 100 feet north of the road; at an elevation of 40 feet:

A—0 to 4 inches; black (10YR 2/1) clay loam; weak medium granular structure; very friable; common fine and few coarse roots; moderately acid; gradual smooth boundary.

Btg1—4 to 11 inches; very dark gray (10YR 3/1) clay loam; moderate medium subangular blocky structure; friable; few medium and coarse roots; few distinct clay films in old root channels and on faces of peds; moderately acid; gradual wavy boundary.

Btg2—11 to 29 inches; dark gray (10YR 4/1) clay; few medium distinct yellowish brown (10YR 5/8) mottles; strong coarse prismatic structure; firm; few fine and medium roots; few fine pores; common distinct clay films on faces of peds; moderately acid; gradual wavy boundary.

Btg3—29 to 44 inches; dark gray (10YR 4/1) clay; common medium distinct strong brown (7.5YR 5/8) mottles; strong coarse prismatic structure; firm; few fine roots; few fine pores; common distinct clay films on faces of peds; moderately acid; gradual wavy boundary.

Btg4—44 to 62 inches; light brownish gray (2.5Y 6/2) clay loam; few fine distinct olive yellow (2.5Y 6/8) mottles; weak medium subangular blocky structure; friable; few fine roots and pores; few faint clay films on faces of peds; few fine flakes of mica; very strongly acid; clear wavy boundary.

2Cg—62 to 80 inches; light gray (5Y 6/1) sand; single grained; loose; neutral.

The thickness of the solum ranges from 50 to 80 inches. The soils are very strongly acid to slightly acid in the A horizon and in the upper part of the Btg horizon and very strongly acid to neutral in the lower part of the Btg horizon and in the C horizon.

The A horizon has hue of 10YR or 2.5Y or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. It is loam or clay loam.

The Btg horizon has hue of 10YR to 5Y or is neutral in hue. It has value of 3 to 7 and chroma of 0 to 2. It has few or common mottles in shades of brown or olive in most pedons. It is clay loam, sandy clay, or clay.

The Cg or 2Cg horizon has hue of 10YR to 5Y, value of 6 or 7, and chroma of 1 or 2. In some pedons it has mottles in shades of yellow, olive, or gray. It is sand or loamy sand or is stratified with various textures.

Byars Series

The Byars series consists of very poorly drained, slowly permeable soils that formed in clayey and loamy marine sediments. These nearly level soils are in depressions, drainageways, and Carolina bays on upland terraces. Slopes range from 0 to 2 percent. The soils are classified as clayey, kaolinitic, thermic Umbric Paleaquults.

Byars soils are associated on the landscape with Coxville, Pantego, Rains, Rembert, and Pelham soils. Coxville and Rembert soils do not have an umbric epipedon. Pantego, Pelham, and Rains soils have a fine-loamy particle-size control section.

Typical pedon of Byars loam, ponded, about 0.6 mile southeast of Solomans Crossroads on South Carolina Highway 3, about 1 mile south of the highway on a farm road, about 200 feet east of the road, in a wooded area; at an elevation of 120 feet:

A—0 to 13 inches; black (10YR 2/1) loam; weak medium granular structure; friable; many fine, medium, and coarse roots; strongly acid; clear smooth boundary.

Btg1—13 to 24 inches; dark gray (10YR 4/1) clay loam; few medium faint very dark gray (10YR 3/1) mottles; weak medium subangular blocky structure; firm; common fine and medium roots; few fine pores; few distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg2—24 to 37 inches; dark gray (10YR 4/1) clay; common fine distinct yellowish brown (10YR 5/8) and few medium faint very dark gray (10YR 3/1) mottles; weak medium subangular blocky structure; firm; few fine roots; few fine pores; few distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg3—37 to 46 inches; dark gray (10YR 4/1) clay; few medium faint very dark gray (10YR 3/1), common fine distinct light brownish gray (10YR 6/2), and few fine distinct dark yellowish brown (10YR 4/4) mottles; weak medium subangular blocky structure; firm; few fine pores; few faint clay films on faces of

peds; very strongly acid; gradual wavy boundary.

Btg4—46 to 60 inches; dark grayish brown (10YR 4/2) clay; few coarse distinct very dark gray (10YR 3/1), few medium faint grayish brown (10YR 5/2), and few medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; few fine pores; few faint clay films on faces of peds; very strongly acid.

The thickness of the solum ranges from 60 to more than 80 inches. The soils are very strongly acid or strongly acid throughout, except for the surface layer in limed areas.

The A or Ap horizon has hue of 10YR, value of 2 or 3, and chroma of 1. It is sandy loam or loam.

The Btg horizon has hue of 10YR, value of 3 to 6, and chroma of 1 or 2. It has mottles in shades of yellow or brown. It is clay loam or clay.

Cahaba Series

The Cahaba series consists of well drained, moderately permeable soils that formed in loamy marine sediments. These nearly level and gently sloping soils are on upland stream terraces adjacent to the flood plain along the Savannah River. Slopes range from 0 to 6 percent. The soils are classified as fine-loamy, siliceous, thermic Typic Hapludults.

Cahaba soils are associated on the landscape with Argent, Eulonia, and Wahee soils, which have a clayey particle-size control section and are on the lower parts of the landscape.

Typical pedon of Cahaba loamy sand, 0 to 2 percent slopes, about 8 miles southwest of Estill, about 0.4 mile north of the junction of South Carolina Highways 62 and 20, about 2.1 miles southwest on an unimproved road to Crab Orchard Plantation, about 600 feet southeast of the road, in a cultivated field; at an elevation of 50 feet:

Ap—0 to 8 inches; brown (7.5YR 4/4) loamy sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

Bt—8 to 42 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few coarse sand grains; few fine pores; few faint clay films on faces of peds; moderately acid; gradual wavy boundary.

BC—42 to 54 inches; red (2.5YR 4/6) sandy clay loam that has strata of sandy loam and loamy sand; weak medium subangular blocky structure; friable; few coarse sand grains; strongly acid; gradual wavy boundary.

C—54 to 75 inches; red (2.5YR 4/8) sandy loam that has strata of loamy sand; massive; very friable; few coarse sand grains; few fine flakes of mica; strongly acid.

The thickness of the solum ranges from 40 to 60 inches. The soils are very strongly acid to moderately acid throughout, except for the surface layer in limed areas.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4. It is loamy sand.

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

The BC horizon has hue of 2.5YR to 7.5YR, value of 4 to 7, and chroma of 3 to 8. It has mottles in shades of red, brown, or yellow. It is sandy loam or is sandy clay loam that has strata of loamy sand and sandy loam.

The C horizon has hue of 2.5YR to 10YR, value of 4 to 7, and chroma of 3 to 8. It has mottles in shades of red, brown, or yellow. It is sandy loam that has strata of loamy sand or sand.

Centenary Series

The Centenary series consists of somewhat excessively drained, moderately rapidly permeable soils that formed in sandy marine sediments. These nearly level soils are on upland terraces and around the edge of Carolina bays. Slopes range from 0 to 2 percent. The soils are classified as sandy, siliceous, thermic Grossarenic Entic Haplohumods.

Centenary soils are associated on the landscape with Blanton, Chipley, Echaw, Foxworth, and Ocilla soils. Blanton, Chipley, Foxworth, and Ocilla soils do not have a spodic horizon. Echaw soils have a spodic horizon at a depth of 30 to 50 inches.

Typical pedon of Centenary sand, about 1 mile northeast of Hampton, about 500 feet west of U.S. Highway 601 on South Carolina Highway 315, about 100 feet north of the highway, in a cultivated field; at an elevation of 115 feet:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) sand; weak fine granular structure; very friable; common fine roots; slightly acid; clear smooth boundary.

E1—10 to 22 inches; light yellowish brown (10YR 6/4) fine sand; single grained; loose; few fine roots; few uncoated sand grains; slightly acid; gradual wavy boundary.

E2—22 to 35 inches; light yellowish brown (10YR 6/4) fine sand; common medium distinct white (10YR 8/2), common medium distinct strong brown (7.5YR 5/8), and few fine prominent red (2.5YR 4/8) mottles; single grained; loose; few fine roots; moderately acid; clear wavy boundary.

E3—35 to 52 inches; white (10YR 8/1) fine sand; common medium distinct pinkish gray (7.5YR 6/2) mottles; single grained; loose; moderately acid; clear wavy boundary.

Bh1—52 to 59 inches; dark brown (7.5YR 4/2) loamy sand; common medium distinct dark reddish brown (5YR 2.5/2) mottles; single grained; loose; slightly brittle in parts of the darker spots; moderately acid; gradual wavy boundary.

Bh2—59 to 77 inches; dark brown (7.5YR 3/2) sand; common medium distinct dark reddish brown (5YR 2.5/2) mottles; single grained; loose; slightly brittle in parts of the darker spots; moderately acid.

The thickness of the solum ranges from 60 to 80 inches. The soils are very strongly acid to moderately acid throughout, except for the surface layer in limed areas. Depth to the Bh horizon ranges from 50 to 72 inches.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 1 to 3. It is sand, fine sand, loamy sand, or loamy fine sand.

The E horizon has hue of 10YR and generally has value of 5 to 7 and chroma of 3 to 8. In most pedons, however, it has value of 5 to 8 and chroma of 1 or 2 in the lower part. This horizon has mottles in shades of brown or yellow in some pedons. It is sand, fine sand, or loamy sand.

The Bh horizon has hue of 5YR to 10YR, value of 2 to 4, and chroma of 1 to 3. It is sand, fine sand, or loamy sand.

Chastain Series

The Chastain series consists of poorly drained, slowly permeable soils that formed in clayey and loamy alluvial sediments. These nearly level soils are on flood plains adjacent to the Savannah River. Slopes range from 0 to 2 percent. The soils are classified as fine, mixed, acid, thermic Typic Fluvaquents.

The Chastain soils in Hampton County are a taxadjunct to the series because they are nonacid in the control section. This difference, however, does not significantly alter the use or behavior of the soils.

Chastain soils are associated on the landscape with Tawcaw soils, which are somewhat poorly drained Dystrochrepts on the slightly higher ridges.

Typical pedon of Chastain clay, in an area of Tawcaw-Chastain complex, frequently flooded, about 10 miles southwest of Estill, about 2 miles southwest of South Carolina Highway 20 on a private road on the Bostic Plantation, about 1,000 feet onto a flood plain, about 200 feet north of the road; at an elevation of 40 feet:

A—0 to 2 inches; brown (10YR 5/3) clay; common fine distinct yellowish brown (10YR 5/6) and few medium distinct gray (10YR 5/1) mottles; moderate medium subangular blocky structure; very firm; many fine, medium, and coarse roots; few fine pores; moderately acid; clear smooth boundary.

Bg1—2 to 26 inches; gray (10YR 5/1) clay; common medium distinct yellowish brown (10YR 5/6) mottles; strong coarse prismatic structure; very firm; few medium and common fine roots; many fine and medium pores; many distinct clay films on faces of peds and common distinct clay films along old root channels; neutral; gradual wavy boundary.

Bg2—26 to 45 inches; gray (10YR 6/1) clay; common medium distinct light yellowish brown (10YR 6/4) and few medium distinct yellow (10YR 6/8) mottles; moderate medium prismatic structure; very firm; few fine roots; few fine pores; common distinct clay films on faces of peds; few fine and medium concretions of calcium carbonate; neutral; gradual wavy boundary.

BCg1—45 to 54 inches; greenish gray (5BG 6/1) clay; few fine distinct gray (5Y 5/1) mottles; weak coarse subangular blocky structure; firm; few fine roots; few medium concretions of calcium carbonate; neutral; gradual wavy boundary.

BCg2—54 to 59 inches; gray (5Y 5/1) sandy clay loam that has strata of clay and loamy sand; common medium distinct greenish gray (5BG 6/1) mottles; weak coarse subangular blocky structure; friable; neutral; gradual wavy boundary.

2Cg—59 to 70 inches; gray (10YR 6/1) coarse sand; single grained; loose; few fine flakes of mica; moderately acid.

The thickness of the solum ranges from 40 to 80 inches. The soils are moderately acid to mildly alkaline throughout. Some pedons have received recent deposits of alluvium 1 to 3 inches thick.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1 to 4. It is clay loam, silty clay loam, silty clay, or clay.

The Bg horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. It has mottles in shades of brown or yellow in some pedons. It is silty clay or clay.

The 2Cg horizon has hue of 10YR to 5Y or of 5BG, value of 4 to 6, and chroma of 1 or 2. It is coarse sand, sand, or loamy sand.

Chipley Series

The Chipley series consists of moderately well drained, rapidly permeable soils that formed in sandy marine sediments. These nearly level soils are on sandy upland terraces. Slopes range from 0 to 2

percent. The soils are classified as thermic, coated Aquic Quartzipsamments.

Chipley soils are associated on the landscape with Autryville, Blanton, Centenary, Foxworth, and Ocilla soils. Autryville and Ocilla soils are Ultisols and are in an Arenic subgroup. Blanton soils are Ultisols and are in a Grossarenic subgroup. Centenary soils have a spodic horizon. Foxworth soils have a seasonal high water table at a depth of 40 to 72 inches.

Typical pedon of Chipley fine sand, 0 to 2 percent slopes, about 6 miles east of Estill, about 1.3 miles north of the intersection of South Carolina Highways 3 and 513, about 100 feet east of South Carolina Highway 513; at an elevation of 115 feet:

Ap—0 to 10 inches; grayish brown (10YR 5/2) fine sand; single grained; loose; common fine roots; slightly acid; clear smooth boundary.

C1—10 to 24 inches; yellow (10YR 7/6) fine sand; single grained; loose; few fine roots; slightly acid; gradual smooth boundary.

C2—24 to 45 inches; very pale brown (10YR 7/4) fine sand; common medium distinct yellow (10YR 7/8) and few medium distinct light gray (10YR 7/2) mottles; single grained; loose; moderately acid; gradual wavy boundary.

C3—45 to 52 inches; white (10YR 8/2) fine sand; common fine distinct very pale brown (10YR 8/4) mottles; single grained; loose; moderately acid; gradual wavy boundary.

C4—52 to 75 inches; white (10YR 8/1) fine sand; single grained; loose; moderately acid; gradual wavy boundary.

C5—75 to 80 inches; light gray (10YR 7/1) fine sand; common medium faint very pale brown (10YR 7/3) mottles; single grained; loose; moderately acid.

The sandy material is more than 80 inches thick. The soils are strongly acid or moderately acid throughout, except for the surface layer in limed areas.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is sand or fine sand.

The C horizon has hue of 10YR. It has value of 4 to 7 and chroma of 3 to 6 in the upper part and value of 4 to 8 and chroma of 1 or 2 in the lower part. In most pedons it has mottles in shades of brown, yellow, or gray. It is sand or fine sand.

Coxville Series

The Coxville series consists of poorly drained, moderately slowly permeable soils that formed in clayey marine sediments. These nearly level soils are in drainageways and depressions on upland terraces. Slopes range from 0 to 2 percent. The soils are classified as clayey, kaolinitic, thermic Typic Paleaquults.

Coxville soils are associated on the landscape with Byars, Lynchburg, Pantego, Pelham, and Rains soils. Byars and Pantego soils have an umbric epipedon. Lynchburg, Pantego, Pelham, and Rains soils have a fine-loamy particle-size control section. Pelham soils are in an Arenic subgroup.

Typical pedon of Coxville loam, about 4.7 miles west of Estill on South Carolina Highway 39, about 250 feet south of the highway, in a wooded area; at an elevation of 100 feet:

A—0 to 5 inches; very dark gray (10YR 3/1) loam; weak fine subangular blocky structure; very friable; common fine and few medium and coarse roots; very strongly acid; clear smooth boundary.

E—5 to 10 inches; gray (10YR 5/1) loam; common medium distinct brownish yellow (10YR 6/6) mottles; common very dark gray (10YR 3/1) streaks along old root channels; weak medium subangular blocky structure; friable; common fine and few medium roots; few fine tubular pores; few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Btg1—10 to 25 inches; gray (10YR 6/1) clay; common medium distinct brownish yellow (10YR 6/8) and few fine prominent red (2.5YR 4/8) mottles; common dark gray (10YR 4/1) streaks on faces of peds; moderate medium subangular blocky structure; firm; few fine roots; few fine tubular pores; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg2—25 to 41 inches; gray (10YR 6/1) clay; many medium prominent red (2.5YR 4/8) and common medium distinct brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; firm; few fine roots; few fine tubular pores; common distinct clay films on faces of peds; strongly acid; gradual wavy boundary.

Btg3—41 to 67 inches; gray (10YR 5/1) clay; common medium prominent red (2.5YR 4/8) and common medium distinct yellow (10YR 7/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; few fine tubular pores; few distinct clay films on faces of peds; strongly acid; gradual wavy boundary.

Btg4—67 to 75 inches; mottled gray (10YR 5/1), light gray (5Y 7/1), brownish yellow (10YR 6/8), and red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; very strongly acid.

The thickness of the solum ranges from 60 to 80 inches. The soils are very strongly acid or strongly acid

throughout, except for the surface layer in limed areas.

The A or Ap horizon has hue of 10YR or 2.5Y or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. It is sandy loam, fine sandy loam, or loam.

The E horizon, if it occurs, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. It is sandy loam, fine sandy loam, loam, or sandy clay loam.

The Btg horizon has hue of 10YR to 5Y or is neutral in hue. It has value of 4 to 7 and chroma of 0 to 2. In most pedons it has mottles in shades of red, brown, yellow, or gray. It is clay loam, sandy clay, or clay.

Echaw Series

The Echaw series consists of moderately well drained, moderately rapidly permeable or rapidly permeable soils that formed in sandy marine sediments. These nearly level soils are on sandy upland terraces. Slopes range from 0 to 2 percent. The soils are classified as sandy, siliceous, thermic Entic Haplohumods.

Echaw soils are associated on the landscape with Centenary, Leon, and Osier soils. Centenary soils have a spodic horizon at a depth of more than 50 inches. Leon soils have a spodic horizon at a depth of 18 to 30 inches. Osier soils do not have a spodic horizon.

Typical pedon of Echaw sand, about 5 miles south of Varnville on South Carolina Highway 278, about 1 mile west on South Carolina Highway 51, about 0.7 mile south on Deloach Road, about 0.2 mile west on a farm road, in the northeast corner of a cultivated field; at an elevation of 90 feet:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) sand; single grained; loose; common fine roots; strongly acid; clear smooth boundary.

E1—9 to 25 inches; light yellowish brown (10YR 6/4) sand; few fine distinct strong brown (7.5YR 5/8) mottles; weak fine granular structure; very friable; few fine roots; strongly acid; gradual smooth boundary.

E2—25 to 32 inches; light yellowish brown (10YR 6/4) loamy sand; common medium distinct brownish yellow (10YR 6/8) and common medium distinct light brownish gray (10YR 6/2) mottles; weak fine granular structure; very friable; few fine roots; strongly acid; gradual wavy boundary.

E3—32 to 41 inches; pinkish gray (7.5YR 6/2) sand; common medium distinct pale brown (10YR 6/3) mottles; single grained; loose; strongly acid; clear smooth boundary.

Bh1—41 to 48 inches; dark brown (7.5YR 3/2) sand; common medium faint very dark brown (10YR 2/2) mottles; single grained; loose; strongly acid; gradual wavy boundary.

Bh2—48 to 76 inches; dark reddish brown (5YR 2.5/2) sand; common medium distinct light brownish gray (10YR 6/2) mottles; single grained; loose; strongly acid.

Depth to the Bh horizon ranges from 30 to 50 inches. The thickness of the solum ranges from 45 to more than 60 inches. The soils are very strongly acid to moderately acid throughout.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is sand, fine sand, or loamy fine sand.

The upper part of the E horizon has hue of 7.5YR or 10YR, value of 6 or 7, and chroma of 3 to 6. The lower part has the same colors as the upper part and has mottles in shades of gray, or it has chroma of 1 or 2 and has mottles of higher chroma. This horizon is fine sand, loamy sand, or loamy fine sand.

The Bh horizon has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 or 2. It has mottles in shades of gray or brown in most pedons. It is sand, fine sand, loamy sand, or loamy fine sand.

Elloree Series

The Elloree series consists of poorly drained, moderately rapidly permeable soils that formed in sandy and loamy sediments. These nearly level soils are in drainageways and depressions. Slopes range from 0 to 2 percent. The soils are classified as loamy, siliceous, thermic Arenic Ochraqualfs.

Elloree soils are associated on the landscape with Grifton, Pelham, Plummer, Osier, and Rutlege soils. Pelham soils are Ultisols. Grifton soils have an argillic horizon within 20 inches of the surface. Plummer soils are in a Grossarenic subgroup. Osier and Rutlege soils are sandy throughout.

Typical pedon of Elloree loamy fine sand, occasionally flooded, in the city of Hampton, near East Pulaski Street, about 0.3 mile south of U.S. Highway 278, about 30 feet west of the street, in a wooded area; at an elevation of 90 feet:

A—0 to 6 inches; very dark gray (10YR 3/1) loamy fine sand; weak fine granular structure; very friable; many fine, medium, and coarse roots; very strongly acid; gradual wavy boundary.

E1—6 to 23 inches; light brownish gray (10YR 6/2) loamy fine sand; many medium faint light gray (10YR 7/2) mottles; weak fine granular structure; very friable; few pockets of cemented material; common fine, medium, and coarse roots; moderately acid; clear wavy boundary.

E2—23 to 31 inches; light gray (10YR 7/1) fine sand; few medium distinct dark grayish brown (10YR 4/2)

mottles; single grained; loose; few pockets of cemented material; few fine and medium roots; slightly acid; clear wavy boundary.

Btg—31 to 45 inches; gray (10YR 6/1) sandy clay loam; common fine distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds and along old root channels; neutral; gradual wavy boundary.

BCg—45 to 56 inches; light gray (10YR 7/1) loamy sand; weak fine granular structure; very friable; few fine roots; neutral; gradual wavy boundary.

Cg—56 to 65 inches; gray (10YR 6/1) sand; single grained; loose; mildly alkaline.

The thickness of the solum ranges from 40 to 60 inches. The soils are very strongly acid to moderately acid in the A horizon, strongly acid to neutral in the E horizon, and moderately acid to mildly alkaline in the B and C horizons. Concretions of calcium carbonate are in the B and C horizons in some pedons.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is loamy sand or loamy fine sand.

The E horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. It is sand, fine sand, loamy sand, or loamy fine sand.

The Btg horizon has hue of 10YR to 5Y or is neutral in hue. It has value of 4 to 6 and chroma of 0 to 2. It is sandy loam or sandy clay loam.

The BCg horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. It is loamy sand or sandy loam.

The Cg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2. It is dominantly sand or loamy sand, but in some pedons it has various textures.

Emporia Series

The Emporia series consists of well drained, moderately slowly permeable or slowly permeable soils that formed in loamy marine sediments. These gently sloping to strongly sloping soils are on upland terraces adjacent to drainageways and depressions. Slopes range from 2 to 10 percent. The soils are classified as fine-loamy, siliceous, thermic Typic Hapludults.

Emporia soils are associated on the landscape with Autryville, Blanton, Bonneau, Noboco, Norfolk, and Uchee soils. Autryville, Bonneau, and Uchee soils are in an Arenic subgroup. Blanton soils are in a Grossarenic subgroup. Noboco and Norfolk soils are not characterized by a decrease in content of clay within a depth of 60 inches.

Typical pedon of Emporia loamy sand, 2 to 6 percent slopes, about 2 miles north of Gifford, about 400 feet east of U.S. Highway 321, about 50 feet east of an old borrow pit; at an elevation of 125 feet:

Ap—0 to 11 inches; grayish brown (10YR 5/2) loamy sand; weak fine granular structure; very friable; common fine roots; about 5 percent fine and medium concretions of ironstone; moderately acid; abrupt smooth boundary.

Bt1—11 to 31 inches; strong brown (7.5YR 5/8) sandy clay loam; common medium distinct red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine tubular pores; few distinct clay films along old root channels; about 2 percent fine and medium nodules of plinthite and concretions of ironstone; strongly acid; gradual wavy boundary.

Bt2—31 to 45 inches; mottled red (2.5YR 4/8), gray (10YR 6/1), and brownish yellow (10YR 6/8) sandy clay loam; weak medium subangular blocky structure in the red and yellowish parts and massive in the gray part; firm; few distinct clay films on faces of peds; strongly acid; gradual wavy boundary.

BC—45 to 60 inches; red (2.5YR 4/8) sandy clay loam that has strata of sandy loam and loamy sand; common medium distinct brownish yellow (10YR 6/8) and few fine distinct gray (10YR 6/1) mottles; massive in most parts but weak medium subangular blocky structure in some peds; friable; few fine flakes of mica; strongly acid.

The thickness of the solum ranges from 40 to more than 60 inches. The soils are very strongly acid to moderately acid throughout, except for the surface layer in limed areas. Some pedons have a lithologic discontinuity below a depth of 40 inches. The content of ironstone concretions ranges from 0 to 10 percent in the A, E, and Bt horizons.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. It is loamy sand or loamy fine sand.

The E horizon, if it occurs, has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 3 to 6. It is sand, fine sand, loamy sand, or loamy fine sand.

The Bt horizon has hue of 5YR to 10YR, value of 5 or 6, and chroma of 6 to 8. It has few or common mottles in shades of red, yellow, or brown in some pedons. In most pedons the lower part has mottles in shades of red, brown, yellow, or gray. This horizon is sandy clay loam or clay loam.

The BC horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 5 to 8. It is mottled in shades of red, brown, yellow, or gray in some pedons. It is loamy sand, sandy loam, sandy clay loam, or sandy clay.

The C horizon, if it occurs, has hue of 2.5YR to

10YR, value of 4 to 6, and chroma of 5 to 8. It is mottled in shades of red, brown, yellow, or gray in some pedons. It is stratified with various textures.

Eulonia Series

The Eulonia series consists of moderately well drained, moderately slowly permeable soils that formed in clayey and loamy fluvial and marine sediments. These nearly level and gently sloping soils are on low stream terraces. Slopes range from 0 to 6 percent. The soils are classified as clayey, mixed, thermic Aquic Hapludults.

Eulonia soils are associated on the landscape with Argent, Cahaba, and Wahee soils. Argent soils are Aqualfs. Cahaba soils have a fine-loamy particle-size control section. Wahee soils are Aquults.

Typical pedon of Eulonia fine sandy loam, 0 to 2 percent slopes, about 4.1 miles northwest of Garnett on South Carolina Highway 20, about 3.0 miles southwest on an unimproved road to the Hamilton Ridge clubhouse, about 1,700 feet north on a road in a wooded area, about 50 feet east of the road, in an area of planted pine; at an elevation of 45 feet:

Ap—0 to 5 inches; dark gray (10YR 4/1) fine sandy loam; weak medium granular structure; very friable; few fine, medium, and coarse roots; strongly acid; gradual wavy boundary.

E—5 to 14 inches; light gray (10YR 7/2) fine sandy loam; weak fine granular structure; friable; few fine roots; moderately acid; clear smooth boundary.

Bt1—14 to 21 inches; brownish yellow (10YR 6/6) clay; common medium prominent red (2.5YR 4/8) and common medium distinct pale brown (10YR 6/3) mottles; moderate medium subangular blocky structure; very firm; few fine roots; few fine pores; few distinct clay films on faces of peds; thin coatings of light gray (10YR 7/2) fine sandy loam on faces of some peds; moderately acid; gradual wavy boundary.

Bt2—21 to 33 inches; yellowish brown (10YR 5/6) clay; common medium prominent red (2.5YR 4/6), common medium faint light yellowish brown (10YR 6/4), and few medium distinct light gray (2.5Y 7/2) mottles; strong medium subangular blocky structure; very firm; few fine roots; few fine and medium pores; few faint clay films on faces of peds; moderately acid; gradual wavy boundary.

Btg—33 to 45 inches; light gray (2.5Y 7/2) clay; common medium prominent red (2.5YR 4/8), common medium distinct brownish yellow (10YR 6/6), and common medium faint pale yellow (2.5Y 7/4) mottles; strong medium subangular blocky structure; very firm; few fine roots; few fine pores; few distinct clay films on faces of peds; moderately acid; clear wavy boundary.

BCg1—45 to 52 inches; mottled light gray (2.5Y 7/2) and yellowish brown (10YR 5/8) clay loam; few medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; few fine roots; very strongly acid; gradual wavy boundary.

BCg2—52 to 68 inches; light gray (2.5Y 7/2) clay loam; common medium distinct yellowish brown (10YR 5/8) and few medium prominent red (2.5YR 4/8) mottles; weak medium subangular blocky structure; very strongly acid; gradual wavy boundary.

C—68 to 80 inches; brownish yellow (10YR 6/8) sandy clay loam that has strata of loamy sand; common medium distinct light gray (10YR 7/1) and common medium distinct strong brown (7.5YR 5/8) mottles; massive; few fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 40 to 80 inches. The soils are very strongly acid to moderately acid throughout, except for the surface layer in limed areas.

The A or Ap horizon has hue of 10YR, value of 4 to 6, and chroma of 1 to 3. It is loamy sand, loamy fine sand, sandy loam, or fine sandy loam.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 4. It has mottles in shades of brown or yellow in some pedons. It is loamy sand, loamy fine sand, sandy loam, or fine sandy loam.

The Bt horizon has hue of 2.5YR to 10YR, value of 4 to 7, and chroma of 3 to 8. In most pedons it has mottles in shades of red, brown, or yellow. It has mottles in shades of gray below a depth of 17 inches. This horizon is clay loam, sandy clay, or clay.

The Btg horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. It has mottles in shades of red, brown, yellow, or gray in most pedons. It is sandy clay or clay.

The BCg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2. In some pedons it has mottles in shades of red, yellow, brown, or gray. It is clay loam or sandy clay loam. In some pedons it is stratified.

The C horizon has hue of 10YR to 5Y, value of 5 to 8, and chroma of 1 to 8. It is mottled in some pedons. It varies in texture.

Foxworth Series

The Foxworth series consists of somewhat excessively drained, rapidly permeable or very rapidly permeable soils that formed in sandy marine sediments.

These nearly level and gently sloping soils are on sandy upland terraces. Slopes range from 0 to 6 percent. The soils are classified as thermic, coated Typic Quartzipsamments.

Foxworth soils are associated on the landscape with Alaga, Alpin, Autryville, Blanton, Bonneau, and Lakeland soils. Alaga soils have a higher content of silt and clay in the particle-size control section than the Foxworth soils. Alpin soils have lamellae at a depth of 40 to 70 inches. Autryville, Blanton, and Bonneau soils are Ultisols. Lakeland soils do not have a seasonal high water table within a depth of 72 inches.

Typical pedon of Foxworth fine sand, 0 to 6 percent slopes, about 3 miles south of Early Branch, about 0.3 mile southeast of the junction of South Carolina Highways 65 and 17, about 0.7 mile southwest on an unimproved county road, about 10 feet south of the road, in a fallow field; at an elevation of 80 feet:

A—0 to 8 inches; grayish brown (10YR 5/2) fine sand; single grained; loose; common fine and few medium roots; moderately acid; abrupt smooth boundary.

C1—8 to 23 inches; yellow (10YR 7/6) fine sand; few fine faint very pale brown (10YR 8/3) mottles; single grained; loose; few fine and few medium roots; strongly acid; gradual wavy boundary.

C2—23 to 41 inches; very pale brown (10YR 7/4) fine sand; single grained; loose; few medium and few fine roots; common uncoated white (10YR 8/2) sand grains; strongly acid; gradual wavy boundary.

C3—41 to 54 inches; reddish yellow (7.5YR 6/8) fine sand; single grained; loose; few medium and few fine roots; common uncoated white (10YR 8/2) sand grains; strongly acid; gradual wavy boundary.

C4—54 to 63 inches; yellow (10YR 7/6) fine sand; common medium distinct white (10YR 8/2) mottles; single grained; loose; few fine roots; strongly acid; gradual wavy boundary.

C5—63 to 78 inches; very pale brown (10YR 8/4) fine sand; common medium faint white (10YR 8/1) mottles; single grained; loose; strongly acid; gradual wavy boundary.

C6—78 to 85 inches; white (10YR 8/1) fine sand; few fine faint very pale brown (10YR 7/4) mottles; single grained; loose; strongly acid.

The sandy material is more than 80 inches thick. The soils are very strongly acid to moderately acid throughout, except for the surface layer in limed areas.

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

The upper part of the C horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 8, and the lower part has hue of 7.5YR or 10YR, value of 6 to 8, and chroma of 1 to 4. In most pedons this horizon has mottles in shades of brown or yellow and has few or common pockets of uncoated sand grains. It is sand or fine sand.

Goldsboro Series

The Goldsboro series consists of moderately well drained, moderately permeable soils that formed in loamy marine sediments. These nearly level soils are on upland terraces. Slopes range from 0 to 2 percent. The soils are classified as fine-loamy, siliceous, thermic Aquic Paleudults.

Goldsboro soils are associated on the landscape with Bonneau, Lynchburg, Noboco, Norfolk, and Ocilla soils. Bonneau and Ocilla soils are in an Arenic subgroup. Lynchburg soils are Aquults. Noboco and Norfolk soils do not have mottles in shades of gray within a depth of 30 inches.

Typical pedon of Goldsboro loamy sand, 0 to 2 percent slopes, about 1.7 miles west of Estill on South Carolina Highway 3, about 2.0 miles south on South Carolina Highway 19, about 2,000 feet southwest on a farm road, about 2,300 feet northwest on a farm road, about 50 feet from the road, in a cultivated field; at an elevation of 105 feet:

Ap—0 to 9 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; common fine roots; neutral; abrupt smooth boundary.

E—9 to 16 inches; very pale brown (10YR 7/4) loamy sand; dark gray (10YR 4/1) stains in old root channels; weak medium granular structure; very friable; few fine roots; few fine pores; neutral; gradual wavy boundary.

Bt1—16 to 22 inches; brownish yellow (10YR 6/6) sandy clay loam; few medium distinct yellowish brown (10YR 5/8) and few medium prominent red (2.5YR 4/8) mottles; weak medium subangular blocky structure; very friable; few fine roots; few fine pores; few faint clay films along old root channels; moderately acid; gradual wavy boundary.

Bt2—22 to 35 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct light brownish gray (10YR 6/2), few medium prominent red (2.5YR 4/8), and common fine distinct light gray (10YR 7/1) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; few faint clay films along old root channels and on faces of peds; strongly acid; gradual wavy boundary.

Btg—35 to 65 inches; light gray (10YR 7/1) sandy clay loam; many medium distinct brownish yellow (10YR 6/6) and common medium prominent red (2.5YR 5/8) mottles; moderate medium subangular blocky

structure; friable; few fine pores; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

BCg—65 to 75 inches; mottled light gray (10YR 7/1), yellowish brown (10YR 5/6), and red (2.5YR 5/8) sandy clay loam; weak coarse subangular blocky structure; very friable; few coarse sand grains; few pockets of loamy sand; few fine flakes of mica; few faint clay films on faces of peds; very strongly acid.

The thickness of the solum ranges from 60 to more than 80 inches. The soils are extremely acid to strongly acid throughout, except for the surface layer in limed areas.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is loamy sand or loamy fine sand.

The E horizon has hue of 10YR, value of 6 or 7, and chroma of 3 to 6. It is loamy sand or loamy fine sand.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. In most pedons it has mottles in shades of red, brown, or yellow. It has mottles in shades of gray at a depth of 18 to 30 inches. This horizon is sandy loam or sandy clay loam.

The Btg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It has mottles in shades of red, brown, or yellow. It is dominantly sandy loam, sandy clay loam, clay loam, or clay. In some pedons, however, it has thin strata or pockets of loamy sand or sand.

The BCg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2, or it is mottled and has no dominant matrix color. It has mottles in shades of red, brown, or yellow in most pedons. It is dominantly sandy clay loam, clay loam, or clay but has strata or pockets of sand or loamy sand.

Grifton Series

The Grifton series consists of poorly drained, moderately permeable soils that formed in loamy marine sediments. These nearly level soils are on flood plains along the Combahee and Coosawhatchie Rivers, the lower reaches of the Salkehatchie River, and the larger drainageways and swamps draining into these rivers. Slopes range from 0 to 2 percent. The soils are classified as fine-loamy, siliceous, thermic Typic Ochraqualfs.

Grifton soils are associated on the landscape with Argent, Elloree, Pelham, Plummer, and Rains soils. Argent soils have a fine textured particle-size control section. Elloree and Pelham soils are in an Arenic subgroup. Plummer soils are in a Grossarenic subgroup. Rains soils are Ultisols.

Typical pedon of Grifton fine sandy loam, in an area of Grifton-Osier complex, frequently flooded, about 2.5 miles southwest of Hampton on U.S. Highway 601, about 150 feet southwest of a bridge, about 75 feet east of U.S. Highway 601, in a swamp; at an elevation of 50 feet:

A—0 to 6 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; strongly acid; clear smooth boundary.

E—6 to 13 inches; light brownish gray (10YR 6/2) loamy fine sand; common medium distinct dark grayish brown (10YR 4/2) mottles; weak fine granular structure; very friable; common fine, medium, and coarse roots; neutral; gradual smooth boundary.

Btg1—13 to 21 inches; gray (10YR 5/1) sandy loam that has lenses of light gray (10YR 7/2) fine sand; common medium distinct light gray (10YR 7/2) mottles; weak medium subangular blocky structure; very friable; few fine and medium roots; few fine pores; few faint clay films on faces of peds; neutral; gradual smooth boundary.

Btg2—21 to 48 inches; gray (N 6/0) sandy clay loam that has strata of light gray (10YR 7/2) fine sand; common medium distinct yellowish brown (10YR 5/4) and common medium distinct light gray (10YR 7/2) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few faint clay films on faces of peds and along old root channels; neutral; clear smooth boundary.

2Cg—48 to 65 inches; light gray (10YR 7/2) sand; single grained; loose; neutral.

The thickness of the solum ranges from 40 to 60 inches. The soils are very strongly acid to neutral in the A and E horizons and moderately acid to neutral in the B and C horizons. Few or common fine or medium concretions of calcium carbonate are in the lower part of the Btg horizon in some pedons.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. It is loamy sand, loamy fine sand, sandy loam, or fine sandy loam.

The E horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. In some pedons it has darker streaks of material from the A horizon. It is loamy sand or loamy fine sand.

The Btg horizon has hue of 10YR or 2.5Y or is neutral in hue. It has value of 4 to 7 and chroma of 0 to 2. In some pedons it has mottles in shades of brown, yellow, or gray. It is sandy loam or sandy clay loam.

The 2Cg horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. It is sand or loamy sand.

Lakeland Series

The Lakeland series consists of excessively drained, rapidly permeable soils that formed in thick deposits of sandy marine sediments. These nearly level and gently sloping soils are on sandy upland terraces. Slopes range from 0 to 6 percent. The soils are classified as thermic, coated Typic Quartzipsamments.

Lakeland soils are associated on the landscape with Alaga, Alpin, Autryville, Blanton, Bonneau, and Foxworth soils. Alaga soils have a higher content of silt and clay in the particle-size control section than the Lakeland soils. Alpin soils have lamellae at a depth of 40 to 70 inches. Autryville, Blanton, and Bonneau soils are Ultisols. Foxworth soils have a seasonal high water table at a depth of 42 to 72 inches.

Typical pedon of Lakeland sand, 0 to 6 percent slopes, about 4 miles southeast of Varnville, about 1.2 miles west of the junction of U.S. Highway 278 and South Carolina Highway 51, about 0.2 mile north on a farm road, about 60 feet north of a fence row in an area of pasture; at an elevation of 95 feet:

A—0 to 7 inches; dark brown (10YR 4/3) sand; single grained; loose; common fine roots; moderately acid; gradual wavy boundary.

C1—7 to 31 inches; yellowish brown (10YR 5/8) sand; single grained; loose; common fine roots; moderately acid; gradual wavy boundary.

C2—31 to 55 inches; strong brown (7.5YR 5/8) sand; single grained; loose; few fine roots; moderately acid; gradual wavy boundary.

C3—55 to 61 inches; yellow (10YR 7/6) sand; common medium distinct white (10YR 8/2) mottles; single grained; loose; few fine roots; moderately acid; gradual wavy boundary.

C4—61 to 80 inches; very pale brown (10YR 7/3) sand; common medium distinct white (10YR 8/1) and common medium distinct yellow (10YR 7/6) mottles; single grained; loose; few fine roots; moderately acid.

The sandy material is more than 80 inches thick. The soils are very strongly acid to moderately acid throughout, except for the surface layer in limed areas.

The A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 to 4. It is sand or fine sand.

The C horizon has hue of 5YR to 10YR, value of 4 to 7, and chroma of 3 to 8. It is sand or fine sand. Most of the sand grains between depths of 10 and 40 inches are coated. In some pedons small pockets of light gray or white uncoated sand grains or mottles in shades of yellow or brown are below a depth of 40 inches.

Leon Series

The Leon series consists of poorly drained, moderately permeable or moderately rapidly permeable soils that formed in thick deposits of sandy marine sediments. These nearly level soils are on sandy upland terraces. Slopes range from 0 to 2 percent. The soils are classified as sandy, siliceous, thermic Aeric Haplaquods.

Leon soils are associated on the landscape with Echaw, Centenary, Chipley, Pelham, Pickney, and Seagate soils. Centenary and Echaw soils are Humods. Pelham soils are in an Arenic subgroup and have a fine-loamy particle-size control section. Pickney soils are Aquepts. Seagate soils have an argillic horizon below the spodic horizon.

Typical pedon of Leon sand, about 7 miles southeast of Varnville, about 3.8 miles west of the junction of South Carolina Highway 55 and U.S. Highway 278, about 1.3 miles northeast on an unimproved county road, about 400 feet southeast of the road; at an elevation of 90 feet:

A—0 to 4 inches; black (10YR 2/1) sand; weak fine granular structure; very friable; common medium and common fine roots; many uncoated sand grains, resulting in a salt-and-pepper appearance; very strongly acid; clear smooth boundary.

E—4 to 12 inches; brown (7.5YR 5/2) sand; common medium distinct light brownish gray (10YR 6/2) mottles; single grained; loose; few medium and common fine roots; very strongly acid; clear smooth boundary.

Bh1—12 to 25 inches; very dark gray (5YR 3/1) fine sand; weak fine granular structure; very friable; common fine roots; few fine pores; very strongly acid; gradual wavy boundary.

Bh2—25 to 32 inches; dark brown (7.5YR 3/2) fine sand; weak fine granular structure; very friable; common fine roots; few fine pores; very strongly acid; gradual wavy boundary.

Bh3—32 to 50 inches; black (N 2/0) loamy fine sand; weak fine granular structure; very friable; few fine roots; few fine pores; very strongly acid; clear smooth boundary.

C—50 to 70 inches; brown (7.5YR 5/2) fine sand; single grained; loose; very strongly acid.

The thickness of the Bh horizon ranges from 20 to 50 inches. The soils are extremely acid to strongly acid throughout, except for surface layer in limed areas.

The A horizon has hue of 10YR or is neutral in hue. It has value of 2 to 4 and chroma of 0 to 2. It has a salt-and-pepper appearance because of the mixing of

organic matter and white sand grains. It is sand or fine sand.

The E horizon has hue of 7.5YR or 10YR or is neutral in hue. It has value of 5 to 7 and chroma of 0 to 2. It is sand or fine sand.

The Bh horizon has hue of 5YR to 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. It is fine sand or loamy fine sand.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 1 to 4. It is sand or fine sand.

Lynchburg Series

The Lynchburg series consists of somewhat poorly drained, moderately permeable soils that formed in loamy marine sediments. These nearly level soils are on upland terraces. Slopes range from 0 to 2 percent. The soils are classified as fine-loamy, siliceous, thermic Aeric Paleaquults.

Lynchburg soils are associated on the landscape with Goldsboro, Ocilla, Pelham, Rains, and Seagate soils. Goldsboro soils are Udults. Ocilla and Pelham soils are in an Arenic subgroup. Rains soils are in a Typic subgroup. Seagate soils a have spodic horizon.

Typical pedon of Lynchburg loamy fine sand, about 2 miles west of Crocketville, about 300 feet north of South Carolina Highway 512 on an unimproved county road, about 50 feet east of the road; at an elevation of 111 feet:

Ap—0 to 9 inches; dark gray (10YR 4/1) loamy fine sand; weak fine granular structure; very friable; common fine roots; few uncoated sand grains; moderately acid; clear smooth boundary.

E—9 to 16 inches; very pale brown (10YR 7/3) loamy fine sand; common medium distinct yellow (10YR 7/6) and few fine distinct light gray (10YR 7/2) mottles; weak medium granular structure; very friable; few fine roots; gray (10YR 5/1) coatings along old root channels; moderately acid; gradual wavy boundary.

Btg1—16 to 35 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/8) and few medium prominent red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few faint clay films on faces of peds; very small pockets of gray (10YR 5/1) sand; strongly acid; gradual wavy boundary.

Btg2—35 to 51 inches; gray (10YR 6/1) sandy clay loam; common medium distinct brownish yellow (10YR 6/8) and common medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; friable; few fine pores; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg3—51 to 65 inches; dark gray (N 4/0) sandy clay loam; few medium distinct brownish yellow (10YR 6/8) and few fine prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg4—65 to 75 inches; dark gray (N 4/0) sandy clay loam; common medium distinct brownish yellow (10YR 6/8) and few fine prominent red (2.5YR 4/8) mottles; weak medium subangular blocky structure; firm; few distinct clay films on faces of peds; few thin strata of gray (10YR 6/1) loamy sand; very strongly acid.

The thickness of the solum ranges from 60 to 80 inches. The soils are extremely acid to strongly acid throughout, except for the surface layer in limed areas.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. It is loamy sand, loamy fine sand, sandy loam, or fine sandy loam.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 3 or 4. It has mottles in shades of brown, yellow, or gray. It is loamy sand, loamy fine sand, sandy loam, or fine sandy loam.

The Bt horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 3 to 6. It has mottles in shades of yellow, brown, or gray in most pedons. It is sandy loam or sandy clay loam.

The Btg horizon has hue of 10YR or is neutral in hue. It has value of 4 to 7 and chroma of 0 to 2. It has mottles in shades of red, brown, yellow, or gray. It is dominantly sandy clay loam. In some pedons, however, it is clay or sandy clay in the lower part.

Nakina Series

The Nakina series consists of very poorly drained, moderately permeable or moderately rapidly permeable soils that formed in loamy marine sediments. These nearly level soils are on the edge of flood plains and in slight depressions. Slopes range from 0 to 2 percent. The soils are classified as fine-loamy, siliceous, thermic Typic Umbraqualfs.

Nakina soils are associated on the landscape with Elloree, Grifton, Pickney, Pelham, Plummer, and Rains soils. Elloree and Pelham soils are in an Arenic subgroup. Grifton soils do not have an umbric epipedon. Plummer soils are in a Grossarenic subgroup. Pickney soils are sandy throughout. Rains soils are Ultisols.

Typical pedon of Nakina fine sandy loam, occasionally flooded, about 2 miles southwest of Varnville on South Carolina Highway 50, about 1.3

miles southeast on South Carolina Highway 593, about 0.6 mile south on a road in a wooded area, about 1,500 feet southwest of the road, on the flood plain along the Coosawhatchie River; at an elevation of 48 feet:

A—0 to 16 inches; black (10YR 2/1) fine sandy loam; weak medium granular structure; very friable; common medium and common coarse roots; very strongly acid; gradual wavy boundary.

Btg1—16 to 37 inches; dark gray (10YR 4/1) sandy clay loam; common fine distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine roots; very strongly acid; gradual wavy boundary.

Btg2—37 to 43 inches; gray (10YR 5/1) sandy clay loam; common medium distinct brownish yellow (10YR 6/6) and common fine distinct dark gray (10YR 4/1) mottles; weak medium subangular blocky structure; firm; few faint clay films on faces of peds; few fine roots; moderately acid; gradual wavy boundary.

BCg1—43 to 55 inches; gray (10YR 6/1) sandy clay loam; common coarse distinct olive brown (2.5Y 4/4), common fine prominent strong brown (7.5YR 5/8), and common fine distinct olive gray (5GY 5/2) mottles; weak medium subangular blocky structure; friable; neutral; gradual wavy boundary.

BCg2—55 to 60 inches; gray (10YR 5/1) sandy clay loam that has strata of loamy sand; weak medium subangular blocky structure; friable; mildly alkaline.

The thickness of the solum ranges from 40 to 60 inches. The soils are very strongly acid to slightly acid in the A horizon, strongly acid to mildly alkaline in the Btg and BCg horizons, and strongly acid to moderately alkaline in the Cg or 2Cg horizon.

The A horizon has hue of 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. It is fine sand, loamy fine sand, fine sandy loam, or loam.

The Btg horizon has hue of 10YR, value of 3 to 6, and chroma of 1 or 2. In some pedons it has mottles in shades of yellow or brown. It is fine sandy loam or sandy clay loam.

The Cg or 2Cg horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. It is dominantly sand or loamy sand, but in some pedons it is stratified with material ranging from sand to clay.

Nansemond Series

The Nansemond series consists of moderately well drained, moderately rapidly permeable soils that formed in sandy and loamy marine sediments. These nearly level soils are on upland terraces. Slopes range from 0 to 2 percent. The soils are classified as coarse-loamy, siliceous, thermic Aquic Hapludults.

Nansemond soils are associated on the landscape with Blanton, Bonneau, Goldsboro, Lynchburg, and Ocilla soils. Blanton soils are in a Grossarenic subgroup. Bonneau and Ocilla soils are in an Arenic subgroup. Goldsboro and Lynchburg soils have a fine-loamy particle-size control section.

Typical pedon of Nansemond loamy sand, 0 to 2 percent slopes, about 2.2 miles northeast of Cummings on South Carolina Highway 42, about 0.4 mile north on South Carolina Highway 141, about 250 feet west of the highway, in a cultivated field; at an elevation of 100 feet:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; common fine roots; moderately acid; clear smooth boundary.

E—8 to 15 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable; few fine roots; moderately acid; gradual wavy boundary.

Bt1—15 to 26 inches; brownish yellow (10YR 6/6) sandy loam; few medium faint yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; very friable; few fine roots; few fine pores; very few faint clay films along old root channels; strongly acid; gradual wavy boundary.

Bt2—26 to 35 inches; brownish yellow (10YR 6/6) sandy loam; common medium distinct yellowish brown (10YR 5/8) and few medium faint light gray (10YR 7/1) mottles; weak medium granular structure; very friable; few fine roots; few fine pores; very few faint clay films along old root channels; strongly acid; gradual wavy boundary.

BCg1—35 to 55 inches; mottled light gray (10YR 7/1), strong brown (7.5YR 5/8), and red (2.5YR 4/8) sandy loam that has strata and pockets of loamy sand; weak medium granular structure; very friable; strongly acid; gradual wavy boundary.

BCg2—55 to 65 inches; light gray (10YR 7/1) loamy sand that has strata and pockets of sandy loam; common medium distinct strong brown (7.5YR 5/8) and few medium prominent red (2.5YR 4/8) mottles; weak medium granular structure; very friable; very strongly acid.

The thickness of the solum ranges from 40 to more than 60 inches. The soils are very strongly acid to moderately acid throughout, except for the surface layer in limed areas.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is loamy sand.

The E horizon has hue of 10YR, value of 6 or 7, and

chroma of 3 or 4. It is loamy sand.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 6. In most pedons it has mottles in shades of brown or yellow. It has mottles in shades of gray in the lower part in most pedons. This horizon is sandy loam.

The BCg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. In some pedons it has mottles in shades of gray, red, yellow, or brown. It is loamy sand or sandy loam, or it is stratified with sandy and loamy material.

Noboco Series

The Noboco series consists of well drained, moderately permeable soils that formed in loamy marine sediments. These nearly level and gently sloping soils are on upland terraces. Slopes range from 0 to 6 percent. The soils are classified as fine-loamy, siliceous, thermic Typic Paleudults.

Noboco soils are associated on the landscape with Bonneau, Emporia, Goldsboro, Lynchburg, Norfolk, and Rains soils. Bonneau soils are in an Arenic subgroup. Emporia soils are Hapludults. Goldsboro soils are in an Aquic subgroup. Lynchburg and Rains soils are Aquults. Norfolk soils have a seasonal high water table below a depth of 48 inches.

Typical pedon of Noboco loamy sand, 0 to 2 percent slopes, about 1 mile west of the intersection of U.S. Highway 321 and South Carolina Highway 3 in Estill, about 50 feet south of South Carolina Highway 3, in a cultivated field; at an elevation of 110 feet:

Ap—0 to 9 inches; grayish brown (10YR 5/2) loamy sand; weak medium granular structure; very friable; few fine roots; slightly acid; clear smooth boundary.

E—9 to 13 inches; pale brown (10YR 6/3) loamy sand; weak fine granular structure; very friable; few fine roots; mixed with some material from the Ap horizon; slightly acid; clear smooth boundary.

Bt1—13 to 33 inches; brownish yellow (10YR 6/6) sandy clay loam; few medium prominent red (2.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few faint clay films on faces of peds and along pores; moderately acid; gradual wavy boundary.

Bt2—33 to 38 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium prominent red (2.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few faint clay films on faces of peds and along pores; moderately acid; gradual wavy boundary.

Bt3—38 to 58 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct light gray (10YR 7/1), common medium distinct light yellowish brown (10YR 6/4), and common medium prominent red (2.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine pores; few faint clay films on faces of peds and along pores; about 1 percent medium nodules of plinthite and concretions of ironstone; strongly acid; gradual wavy boundary.

Bt4—58 to 70 inches; mottled red (2.5YR 4/8), brownish yellow (10YR 6/8), and light gray (10YR 7/1) sandy clay that has thin strata of sandy loam and loamy sand; weak coarse subangular blocky structure; friable; few faint clay films on faces of peds; about 2 percent fine and medium nodules of plinthite and concretions of ironstone; about 2 percent fine quartz gravel; strongly acid; gradual wavy boundary.

BC—70 to 75 inches; red (2.5YR 4/8) and light gray (10YR 7/1) sandy clay loam and loamy sand; common medium distinct brownish yellow (10YR 6/8) mottles; massive; very friable; strongly acid.

The thickness of the solum ranges from 60 to 80 inches. The soils are extremely acid to strongly acid throughout, except for the surface layer in limed areas. Some pedons have as much as 5 percent fine and medium nodules of plinthite and concretions of ironstone.

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

The E horizon has hue of 10YR, value of 6 or 7, and chroma of 3 or 4. It is loamy sand, loamy fine sand, or fine sand.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 to 8. It has mottles in shades of red, yellow, or brown in most pedons. It has mottles in shades of gray at a depth of 30 to 48 inches. In some pedons it has mottles in shades of red, yellow, brown, or gray in the lower part. This horizon is dominantly sandy loam or sandy clay loam, but in some pedons it is sandy clay in the lower part.

Norfolk Series

The Norfolk series consists of well drained, moderately permeable soils that formed in loamy marine sediments. These nearly level and gently sloping soils are on upland terraces. Slopes range from 0 to 6 percent. The soils are classified as fine-loamy, siliceous, thermic Typic Kandiudults.

Norfolk soils are associated on the landscape with Bonneau, Emporia, Goldsboro, Lynchburg, Noboco, Ocilla, and Rains soils. Bonneau and Ocilla soils are in an Arenic subgroup. Emporia soils are Hapludults. Goldsboro soils are in an Aquic subgroup. Lynchburg

and Rains soils are Aquults. Noboco soils have a seasonal high water table at a depth of 30 to 48 inches.

Typical pedon of Norfolk loamy sand, 0 to 2 percent slopes, about 3 miles northeast of Brunson, about 1,300 feet north of a bridge crossing Caw Caw Swamp on South Carolina Highway 28, about 1,200 feet west of the highway on a farm road, about 20 feet south of a bend in the road; at an elevation of 120 feet:

Ap—0 to 11 inches; brown (10YR 5/3) loamy sand; weak medium granular structure; very friable; common fine roots; moderately acid; clear smooth boundary.

E—11 to 16 inches; very pale brown (10YR 7/4) loamy sand; common medium faint light yellowish brown (10YR 6/4) mottles; weak medium granular structure; very friable; few fine roots; moderately acid; gradual smooth boundary.

BE—16 to 20 inches; brownish yellow (10YR 6/6) sandy loam; common medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; strongly acid; gradual smooth boundary.

Bt1—20 to 38 inches; strong brown (7.5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few faint clay films along old root channels; strongly acid; gradual wavy boundary.

Bt2—38 to 52 inches; strong brown (7.5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few faint clay films on faces of peds; about 2 percent fine and medium concretions of ironstone; strongly acid; gradual wavy boundary.

Bt3—52 to 60 inches; strong brown (7.5YR 5/6) sandy clay loam; few medium distinct gray (10YR 6/1) and red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; few fine pores; few faint clay films on faces of peds; about 2 percent fine and medium nodules of plinthite and concretions of ironstone; very strongly acid; gradual wavy boundary.

Bt4—60 to 70 inches; mottled gray (10YR 6/1), brownish yellow (10YR 6/8), dark reddish brown (2.5YR 3/4), and red (2.5YR 4/8) sandy clay loam that has thin strata of sandy loam and loamy sand; weak medium subangular blocky structure in most parts but massive in some parts; friable; few faint clay films on faces of peds; very strongly acid.

The thickness of the solum ranges from 60 to 80 inches. The soils are extremely acid to strongly acid throughout, except for the surface layer in limed areas. Some pedons have as much as 2 percent nodules of plinthite or concretions of ironstone.

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

The E horizon has hue of 10YR, value of 6 or 7, and chroma of 3 or 4. It is sand, fine sand, loamy sand, or loamy fine sand.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 6 to 8. It has mottles in shades of red, yellow, or brown in most pedons. It has mottles in shades of gray at a depth of more than 48 inches. In some pedons it has mottles in shades of red, yellow, brown, or gray in the lower part. This horizon is sandy loam or sandy clay loam.

Ocilla Series

The Ocilla series consists of somewhat poorly drained or moderately well drained, moderately permeable soils that formed in loamy marine sediments. These nearly level soils are on low ridges on upland terraces. Slopes range from 0 to 2 percent. The soils are classified as loamy, siliceous, thermic Aquic Arenic Paleudults.

Ocilla soils are associated on the landscape with Autryville, Blanton, Bonneau, Goldsboro, Noboco, and Rains soils. Autryville soils have a bisequal profile. Blanton soils are in a Grossarenic subgroup. Bonneau soils have a seasonal high water table at a depth of more than 42 inches. Goldsboro, Noboco, and Rains soils have an argillic horizon within 20 inches of the surface.

Typical pedon of Ocilla fine sand, 0 to 2 percent slopes, about 2 miles southeast of Gifford, about 0.3 mile north of South Carolina Highway 41, behind Browning Cemetery, about 20 feet east of a road in an area of planted pine; at an elevation of 120 feet:

Ap—0 to 6 inches; gray (10YR 5/1) fine sand; common medium faint brown (10YR 5/3) mottles; few uncoated sand grains; weak medium granular structure; very friable; many fine roots; slightly acid; clear smooth boundary.

A—6 to 12 inches; grayish brown (10YR 5/2) fine sand; many medium faint pale brown (10YR 6/3) mottles; weak medium granular structure; very friable; common fine roots; few fine pores; slightly acid; gradual smooth boundary.

E—12 to 27 inches; very pale brown (10YR 7/3) loamy fine sand; few medium faint light gray (10YR 7/2) mottles; weak medium granular structure; very friable; few fine roots; few fine pores; moderately acid; clear wavy boundary.

Bt1—27 to 46 inches; light yellowish brown (10YR 6/4) fine sandy loam; common medium distinct yellowish brown (10YR 5/8), common medium distinct light

gray (10YR 7/1), and few medium prominent red (2.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few faint clay films on faces of peds; about 1 percent soft nodules of plinthite; few pockets of fine sand along old root channels; strongly acid; gradual wavy boundary.

Bt2—46 to 68 inches; brownish yellow (10YR 6/6) fine sandy loam; common medium prominent red (2.5YR 4/8), common medium distinct light gray (10YR 7/1), and common medium faint light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few faint clay films on faces of peds; about 1 percent medium nodules of plinthite; few pockets of fine sand between peds; strongly acid; gradual wavy boundary.

Btg—68 to 80 inches; light gray (10YR 7/1) sandy clay loam; common medium distinct brownish yellow (10YR 6/8) and common medium prominent red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; few fine pores; few faint clay films on faces of peds; strongly acid.

The thickness of the solum ranges from 60 to more than 80 inches. The soils are very strongly acid or strongly acid throughout, except for the surface layer in limed areas. The Bt or Btg horizon has as much as 2 percent nodules of plinthite and concretions of ironstone in some pedons.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is loamy sand or loamy fine sand.

The E horizon has hue of 10YR and value of 5 to 7. It generally has chroma of 3 or 4, but in some pedons it has chroma of 1 or 2 in the lower part. In most pedons it has mottles in shades of brown, yellow, or gray. This horizon is sand, fine sand, loamy sand, or loamy fine sand.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. In most pedons it has mottles in shades of red, brown, yellow, or gray. It is fine sandy loam or sandy clay loam.

The Btg horizon, if it occurs, has hue of 10YR, value of 5 to 7, and chroma of 1 or 2, or it is mottled and has no dominant matrix color. In most pedons it has mottles in shades of red, brown, yellow, or gray. It is sandy loam or sandy clay loam.

Osier Series

The Osier series consists of poorly drained, rapidly permeable or very rapidly permeable soils that formed in sandy alluvium. These nearly level soils are on flood plains in the larger swamps, in depressions, and along drainageways. Slopes range from 0 to 2 percent. The soils are classified as siliceous, thermic Typic Psammaquents.

The Osier soils in Hampton County are less acid than is defined as the range for the series and have a higher content of coarse sand in the upper part of the C horizon. These differences, however, do not significantly alter the use or behavior of the soils.

Osier soils are associated on the landscape with Elloree, Grifton, Pickney, and Rutlege soils. Elloree and Grifton soils are Alfisols. Pickney and Rutlege soils have an umbric epipedon.

Typical pedon of Osier loamy sand, about 1.2 miles northeast of Miley on South Carolina Highway 29, between the second and third bridges, 75 feet south of the highway, in a swamp; at an elevation of 50 feet:

A—0 to 6 inches; very dark gray (10YR 3/1) loamy sand; weak medium granular structure; very friable; many fine, medium, and coarse roots; moderately acid; gradual smooth boundary.

Cg1—6 to 19 inches; light gray (10YR 7/2) sand that has very few thin strata of sandy loam; common medium distinct dark gray (10YR 4/1) mottles; weak medium granular structure; very friable; common fine, medium, and coarse roots; slightly acid; gradual smooth boundary.

Cg2—19 to 35 inches; dark gray (10YR 4/1) loamy sand that has common strata of light gray (10YR 7/2) sand; weak medium granular structure; very friable; slightly acid; clear smooth boundary.

Cg3—35 to 70 inches; grayish brown (10YR 5/2) coarse sand; common medium distinct very pale brown (10YR 7/4) mottles; single grained; loose; neutral.

The sandy material is more than 80 inches thick. Some pedons have thin strata or pockets of finer textured material in the upper part of the C horizon. The soils are moderately acid to neutral. Some areas have received 2 to 6 inches of recent alluvial deposits.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is loamy sand, loamy fine sand, or sand.

The C horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. It has mottles in shades of brown or yellow in some pedons. It is coarse sand, sand, or loamy sand in the upper part and coarse sand or sand in the lower part.

Pantego Series

The Pantego series consists of very poorly drained, moderately permeable soils that formed in loamy marine sediments. These nearly level soils are in drainageways and depressions on upland terraces. Slopes range from

0 to 2 percent. The soils are classified as fine-loamy, siliceous, thermic Umbric Paleaquults.

Pantego soils are associated on the landscape with Byars, Coxville, Pelham, Rains, and Rutlege soils. Byars and Coxville soils have a clayey particle-size control section. Pelham and Rains soils do not have an umbric epipedon. Rutlege soils are Aquepts.

Typical pedon of Pantego loam, ponded, about 3 miles east of Brunson, about 0.6 mile south of the intersection of South Carolina Highways 512 and 315, about 150 feet west of South Carolina Highway 315 on the southern power line right-of-way; at an elevation of 113 feet:

A1—0 to 12 inches; black (10YR 2/1) loam; weak fine subangular blocky structure; very friable; many fine and few coarse roots; few fine tubular pores; very strongly acid; gradual smooth boundary.

A2—12 to 19 inches; very dark gray (10YR 3/1) loam; weak fine subangular blocky structure; very friable; common fine and few medium roots; few fine tubular pores; very strongly acid; clear smooth boundary.

E—19 to 24 inches; gray (10YR 5/1) fine sandy loam; few medium faint light gray (10YR 7/1) pockets of fine sand; weak fine granular structure; very friable; common fine roots; few fine tubular pores; very strongly acid; gradual wavy boundary.

Btg1—24 to 39 inches; dark gray (10YR 4/1) sandy clay loam; common medium distinct very dark gray (N 3/0) streaks on faces of peds; common fine distinct light gray (10YR 7/1) and few fine distinct brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; firm; common fine roots; few fine tubular pores; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg2—39 to 62 inches; dark gray (10YR 4/1) clay loam; common fine distinct brownish yellow (10YR 6/8) and common medium distinct very dark gray (10YR 3/1) mottles; moderate medium subangular blocky structure; firm; few fine roots; few fine tubular pores; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg3—62 to 70 inches; gray (10YR 5/1) sandy clay loam; few pockets of light brownish gray (10YR 6/2) loamy sand; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; strongly acid.

The thickness of the solum ranges from 60 to 80 inches. The soils are very strongly acid or strongly acid throughout, except for the surface layer in limed areas.

The A horizon has hue of 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. It is sandy loam, fine sandy loam, or loam.

The E horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. In some pedons it has few or common mottles in shades of brown, yellow, or gray. It is loamy sand, loamy fine sand, sandy loam, or fine sandy loam.

The Btg horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. In most pedons it has mottles in shades of red, brown, yellow, or gray. It is dominantly sandy clay loam or clay loam. In some pedons, however, it is sandy clay in the lower part and has strata or pockets of coarser textured material.

Pelham Series

The Pelham Series consists of poorly drained, moderately permeable soils that formed in sandy and loamy marine sediments. These nearly level soils are in depressions and drainageways on upland terraces. Slopes range from 0 to 2 percent. The soils are classified as loamy, siliceous, thermic Arenic Paleaquults.

Pelham soils are associated on the landscape with Coxville, Goldsboro, Pantego, and Rains soils. Coxville and Rains soils have an argillic horizon within 20 inches of the surface. Coxville soils have a clayey particle-size control section. Goldsboro soils are Udults. Pantego soils have an umbric epipedon.

Typical pedon of Pelham loamy sand, about 3 miles west of Estill on South Carolina Highway 39, about 3.1 miles southwest on South Carolina Highway 62, about 0.2 mile northwest on an unimproved county road at the Jericho Plantation, about 0.18 mile northeast on a farm road, about 300 feet east of the road, in a drainageway; at an elevation of 100 feet:

A1—0 to 6 inches; very dark gray (10YR 3/1) loamy sand; weak fine granular structure; very friable; few coarse, common medium, and many fine roots; very strongly acid; clear smooth boundary.

A2—6 to 14 inches; dark grayish brown (10YR 4/2) loamy sand; common medium distinct very dark gray (10YR 3/1) mottles; weak fine granular structure; very friable; common fine roots; very strongly acid; clear smooth boundary.

E—14 to 34 inches; light gray (10YR 7/2) loamy sand; weak fine granular structure; very friable; few fine roots; very strongly acid; gradual wavy boundary.

Btg1—34 to 46 inches; light gray (10YR 7/1) fine sandy loam; common medium distinct brownish yellow (10YR 6/8) and common medium distinct very pale brown (10YR 7/4) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few faint clay films on faces of peds;

very strongly acid; gradual wavy boundary.

Btg2—46 to 50 inches; light gray (10YR 7/1) sandy clay loam; common medium distinct brownish yellow (10YR 6/8), common medium distinct very pale brown (10YR 7/4), and few medium distinct red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.

Btg3—50 to 75 inches; gray (10YR 6/1) sandy clay loam; few medium distinct brownish yellow (10YR 6/8) and common medium faint light gray (10YR 7/2) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few faint clay films on faces of peds; strongly acid.

The thickness of the solum ranges from 60 to more than 80 inches. The soils are very strongly acid or strongly acid throughout, except for the surface layer in limed areas.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is loamy sand or loamy fine sand.

The E horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. In some pedons it has mottles in shades of brown or gray. It is sand 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 shades of yellow, red, brown, or gray. It is sandy loam, fine sandy loam, or sandy clay loam.

Pickney Series

The Pickney series consists of very poorly drained, rapidly permeable soils that formed in sandy fluvial sediments. These nearly level soils are on flood plains, mainly in the upper reaches of the larger swamps and along the edge of the larger swamps. Slopes range from 0 to 2 percent. The soils are classified as sandy, siliceous, thermic Cumulic Humaquepts.

Pickney soils are associated on the landscape with Elloree, Grifton, Osier, and Rutlege soils. Elloree and Grifton soils have an argillic horizon. Osier soils do not have an umbric epipedon. Rutlege soils have an umbric epipedon that is less than 24 inches thick.

Typical pedon of Pickney loamy fine sand, ponded, about 0.9 mile south of Luray on U.S. Highway 321, about 1.3 miles east of the highway on a farm road, about 300 feet north of the farm road, in a drainageway, about 50 feet west of a power line cut; at an elevation of 80 feet:

A1—0 to 5 inches; black (10YR 2/1) loamy fine sand; weak medium granular structure; friable; many fine, medium, and coarse roots; very strongly acid; gradual smooth boundary.

A2—5 to 29 inches; black (10YR 2/1) fine sand that has pockets of grayish brown (10YR 5/2) loamy sand; weak medium granular structure; very friable; common fine, medium, and coarse roots; strongly acid; clear smooth boundary.

Cg1—29 to 57 inches; dark gray (10YR 4/1) fine sand; many medium distinct light brownish gray (10YR 6/2) mottles; single grained; loose; few fine and medium roots; moderately acid; gradual smooth boundary.

Cg2—57 to 75 inches; light gray (10YR 7/1) fine sand; common medium distinct grayish brown (10YR 5/2) mottles; single grained; loose; moderately acid.

The thickness of the umbric epipedon ranges from 25 to 60 inches. The soils are very strongly acid or strongly acid in the A horizon and strongly acid or moderately acid in the C horizon.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It has few or common pockets or strata of uncoated sand in some pedons. It is fine sand, loamy sand, or loamy fine sand.

The Cg horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. It is coarse sand, sand, fine sand, loamy sand, or loamy fine sand.

Plummer Series

The Plummer series consists of poorly drained, moderately permeable soils that formed in sandy and loamy marine sediments. These nearly level soils are in depressions and drainageways on upland terraces. Slopes range from 0 to 2 percent. The soils are classified as loamy, siliceous, thermic Grossarenic Paleaquults.

Plummer soils are associated on the landscape with Elloree, Osier, Pantego, Pelham, Rains, and Rutlege soils. Elloree and Pelham soils are in an Arenic subgroup. Elloree soils are Alfisols. Osier soils are Entisols. Pantego and Rutlege soils have an umbric epipedon. Rutlege soils are sandy throughout. Rains soils are in a Typic subgroup.

Typical pedon of Plummer loamy fine sand, about 0.7 mile northeast of the junction of South Carolina Highway 63 and U.S. Highway 278, about 0.5 mile northwest of South Carolina Highway 63 on Hampton Road, about 1,000 feet northwest of a school; at an elevation of 90 feet:

A—0 to 6 inches; black (10YR 2/1) loamy fine sand; few fine distinct light gray (10YR 7/1) mottles; weak medium granular structure; very friable; common medium and few coarse roots; very strongly acid; gradual smooth boundary.

E1—6 to 11 inches; grayish brown (10YR 5/2) loamy

fine sand; few fine faint dark gray (10YR 4/1) mottles; single grained; loose; few medium roots; strongly acid; gradual smooth boundary.

E2—11 to 19 inches; light brownish gray (10YR 6/2) loamy fine sand; few fine distinct brownish yellow (10YR 6/6) mottles; single grained; loose; common fine roots; strongly acid; gradual smooth boundary.

E3—19 to 29 inches; light gray (10YR 6/1) loamy fine sand; few medium faint very pale brown (10YR 7/4) mottles; weak medium granular structure; very friable; common fine roots; very strongly acid; gradual smooth boundary.

E4—29 to 59 inches; light brownish gray (10YR 6/2) fine sand; common coarse faint grayish brown (10YR 5/2) mottles; single grained; loose; few fine roots; strongly acid; gradual smooth boundary.

E5—59 to 65 inches; light gray (10YR 7/1) loamy fine sand; common medium faint light brownish gray (10YR 6/2) mottles; single grained; loose; very strongly acid; gradual smooth boundary.

Btg—65 to 80 inches; light gray (10YR 7/2) fine sandy loam; common medium faint light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; few strata of fine sand; very strongly acid.

The thickness of the solum ranges from 72 to more than 80 inches. The soils are extremely acid to strongly acid throughout, except for the surface layer in limed areas.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is fine sand, loamy fine sand, or loamy sand.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. In some pedons it has few or common mottles in shades of yellow or brown. It is sand, fine sand, loamy fine sand, or loamy sand.

The Btg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. In most pedons it has mottles in shades of yellow or brown. It is sandy loam, fine sandy loam, or sandy clay loam.

Pungo Series

The Pungo series consists of very poorly drained, slowly permeable soils that formed in decomposed organic material underlain by loamy sediments. These nearly level soils are in deep depressions and Carolina bays on upland terraces. Slopes range from 0 to 2 percent. The soils are classified as dysic, thermic Typic Medisaprists.

Pungo soils are associated on the landscape with the mineral Coxville, Pantego, Rains, and Rembert soils. Coxville and Rembert soils have a clayey particle-size control section. Pantego and Rains soils have a fine-loamy particle-size control section. Pantego soils have an umbric epipedon.

Typical pedon of Pungo muck, ponded, about 6 miles southwest of Estill, about 700 feet southwest of the junction of South Carolina Highways 62 and 194, about 1 mile northwest on a farm road, about 200 feet north of the farm road, in a wooded area; at an elevation of 85 feet:

Oa1—0 to 21 inches; dark reddish brown (5YR 2.5/2) muck; massive; very friable; many medium roots; about 30 percent fiber before rubbing and less than 10 percent after rubbing; extremely acid; gradual wavy boundary.

Oa2—21 to 38 inches; black (5YR 2.5/1) muck; massive; very friable; many fine and many medium roots; about 20 percent fiber before rubbing and less than 10 percent after rubbing; extremely acid; gradual smooth boundary.

Oe—38 to 59 inches; dark brown (7.5YR 3/4) muck; massive; very friable; few fine and few medium roots; about 75 percent fiber before rubbing and 20 percent after rubbing; extremely acid; clear wavy boundary.

Cg1—59 to 65 inches; very dark gray (10YR 3/1) loam; massive; very friable; few fine and medium roots; very strongly acid; gradual wavy boundary.

Cg2—65 to 75 inches; dark gray (10YR 4/1) clay loam; massive; friable; few fine and medium roots; very strongly acid.

The thickness of the organic material ranges from 51 to more than 80 inches. The soils are extremely acid in the organic horizons and extremely acid to strongly acid in the mineral horizons.

The Oa horizon has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 or 2. It is muck.

The Oe horizon has hue of 5YR or 7.5YR, value of 2 or 3, and chroma of 3 or 4. It is muck.

The Cg horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. It is loam or clay loam or is stratified with various textures.

Rains Series

The Rains series consists of poorly drained, moderately permeable soils that formed in loamy marine sediments. These nearly level soils are in depressions and drainageways on upland terraces. Slopes range from 0 to 2 percent. The soils are classified as fine-loamy, siliceous, thermic Typic Paleaquults.

Rains soils are associated on the landscape with Byars, Coxville, Lynchburg, Pantego, and Pelham soils. Byars and Coxville soils have a clayey particle-size control section. Byars and Pantego soils have an

umbric epipedon. Lynchburg soils are in an Aeric subgroup. Pelham soils are in an Arenic subgroup.

Typical pedon of Rains fine sandy loam, about 2.7 miles northeast of Brunson, about 0.5 mile south of South Carolina Highway 38 on an unimproved county road, about 50 feet west of a curve in the road; at an elevation of 108 feet:

A—0 to 6 inches; very dark gray (10YR 3/1) fine sandy loam; weak medium subangular blocky structure; very friable; common fine and few medium roots; very strongly acid; clear smooth boundary.

E—6 to 10 inches; light gray (10YR 7/2) fine sandy loam; few fine distinct brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; very friable; common fine roots; few fine tubular pores; common dark gray (10YR 4/1) streaks along old root channels; strongly acid; clear smooth boundary.

Btg1—10 to 28 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine tubular pores; few faint clay films along old root channels; common clean sand grains between peds; strongly acid; gradual wavy boundary.

Btg2—28 to 54 inches; gray (10YR 6/1) sandy clay loam; common medium distinct dark yellowish brown (10YR 4/4), common medium distinct brown (7.5YR 4/2), and few medium prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine tubular pores; few distinct clay films on faces of peds; few clean sand grains along old root channels and between peds; very strongly acid; gradual wavy boundary.

Btg3—54 to 66 inches; gray (10YR 6/1) sandy clay loam; many medium distinct brownish yellow (10YR 6/8) and common medium prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; few fine tubular pores; few distinct clay films on faces of peds; few clean sand grains along old root channels and between peds; very strongly acid; gradual wavy boundary.

Btg4—66 to 80 inches; gray (10YR 5/1) sandy clay; common medium distinct light gray (5Y 7/1), few medium prominent red (2.5YR 4/8), and few medium prominent strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure in most parts but massive in some parts; friable; few distinct clay films on faces of peds; very strongly acid.

The thickness of the solum ranges from 60 to 80 inches. The soils are extremely acid to strongly acid throughout, except for the surface layer in limed areas.

The A or Ap horizon has hue of 10YR, value of 2 to 5, and chroma of 1 or 2. It is loamy sand, loamy fine sand, or fine sandy loam.

The E horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. In some pedons it has mottles in shades of brown, yellow, or gray. It is loamy sand, loamy fine sand, sandy loam, or fine sandy loam.

The Btg horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. In most pedons it has mottles in shades of gray, yellow, brown, or red. It is dominantly sandy loam, sandy clay loam, or clay loam. In some pedons, however, it is sandy clay in the lower part.

Rembert Series

The Rembert series consists of poorly drained, slowly permeable soils that formed in clayey marine sediments. These soils are in Carolina bays and depressions on upland terraces. Slopes range from 0 to 2 percent. The soils are classified as clayey, kaolinitic, thermic Typic Ochraquults.

Rembert soils are associated on the landscape with Byars, Coxville, Rains, Pantego, and Pelham soils. Byars and Pantego soils have an umbric epipedon. Pantego, Pelham, and Rains soils have a fine-loamy particle-size control section. Coxville soils have an argillic horizon that does not decrease in content of clay within a depth of 60 inches.

Typical pedon of Rembert sandy loam, ponded, about 1 mile south of Estill on U.S. Highway 321, about 0.25 mile west on an unimproved county road, about 500 feet northwest of the Clemson University catfish ponds; at an elevation of 100 feet:

Ap—0 to 7 inches; very dark gray (10YR 3/1) sandy loam; moderate medium granular structure; very friable; few medium and common fine roots; few fine pores; strongly acid; clear wavy boundary.

Btg1—7 to 19 inches; dark grayish brown (10YR 4/2) sandy clay; few fine distinct yellowish brown (10YR 5/4) and few medium distinct very dark gray (10YR 3/1) mottles; moderate medium subangular blocky structure; firm; few faint clay films on faces of peds and in old root channels; common fine roots; few fine pores; very strongly acid; gradual wavy boundary.

Btg2—19 to 33 inches; dark gray (10YR 4/1) sandy clay; common medium distinct yellowish brown (10YR 5/8) and common medium distinct light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; friable; common distinct clay films on faces of peds; common fine roots; few fine pores; very strongly acid; clear wavy boundary.

BCg—33 to 54 inches; light gray (10YR 7/2) sandy clay loam; common medium distinct light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; gradual wavy boundary.

2Cg—54 to 80 inches; light gray (10YR 7/2) loamy sand that has pockets and strata of sandy clay loam; common medium distinct yellowish brown (10YR 5/8) and common medium distinct light yellowish brown (10YR 6/4) mottles; massive; very friable; very strongly acid.

The thickness of the solum ranges from 40 to more than 60 inches. The soils are very strongly acid or strongly acid throughout, except for the surface layer in limed areas.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. It is sandy loam or loam.

The Btg horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. It has mottles in shades of red, yellow, or brown. It is clay or sandy clay.

The BCg horizon has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. It is dominantly sandy clay loam or sandy clay but in some pedons has pockets or strata of loamy sand.

The 2Cg horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It is loamy sand to sandy clay loam.

Rutlege Series

The Rutlege series consists of very poorly drained, rapidly permeable soils that formed in sandy sediments. These nearly level soils are in shallow depressions, Carolina bays, and drainageways. Slopes range from 0 to 2 percent. The soils are classified as sandy, siliceous, thermic Typic Humaquepts.

Rutlege soils are associated on the landscape with Blanton, Chipley, Osier, Pelham, Pickney, and Seagate soils. Blanton and Pelham soils are Ultisols. Chipley and Osier soils are Entisols. Pickney soils have an umbric epipedon that is more than 24 inches thick. Seagate soils have a spodic horizon.

Typical pedon of Rutlege loamy fine sand, ponded, about 0.5 mile northeast of Varnville on South Carolina Highway 63, about 1.4 miles north on South Carolina Highway 67, about 500 feet east on a farm road, about 50 feet north of the road, in a wooded area; at an elevation of 116 feet:

A1—0 to 6 inches; black (10YR 2/1) loamy fine sand; weak medium granular structure; very friable; common medium and few coarse roots; strongly acid; gradual smooth boundary.

A2—6 to 13 inches; black (10YR 2/1) loamy fine sand; weak fine granular structure; very friable; common medium and coarse roots; strongly acid; clear wavy boundary.

C1—13 to 25 inches; dark gray (10YR 4/1) fine sand; single grained; loose; few fine roots; strongly acid; clear wavy boundary.

C2—25 to 39 inches; gray (10YR 6/1) fine sand; single grained; loose; strongly acid; gradual wavy boundary.

C3—39 to 53 inches; gray (10YR 5/1) fine sand; single grained; loose; strongly acid; gradual wavy boundary.

C4—53 to 65 inches; light gray (10YR 7/1) fine sand; single grained; loose; strongly acid.

The sandy material is more than 80 inches thick. The soils are very strongly acid or strongly acid throughout.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is loamy sand or loamy fine sand.

The Cg horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. It has no mottles or has few or common mottles in shades of brown or gray. It is sand, fine sand, loamy sand, or loamy fine sand.

Seagate Series

The Seagate series consists of somewhat poorly drained, moderately permeable soils that formed in sandy and loamy marine sediments. These nearly level soils are on the lower side slopes on upland terraces. Slopes range from 0 to 2 percent. The soils are classified as sandy over loamy, siliceous, thermic Ultic Haplohumods.

The Seagate soils in Hampton County are a taxadjunct to the series because they have more than 50 percent fine sand or coarser sand in the lower part of the particle-size control section. Also, they have higher chroma in the E horizon than is defined as the range for the series. These differences, however, do not significantly alter the use or behavior of the soils.

Seagate soils are associated on the landscape with Chipley, Echaw, Lynchburg, Ocilla, and Pelham soils. Chipley soils are Entisols. Echaw soils have a spodic horizon at a depth of 30 to 50 inches. Lynchburg, Ocilla, and Pelham soils are Ultisols.

Typical pedon of Seagate sand, about 3.4 miles southwest of Brunson, about 1,100 feet east of the intersection of U.S. Highway 321 and South Carolina Highway 12, about 500 feet north of South Carolina Highway 12, about 150 feet east of a drainage ditch in an open field; at an elevation of 90 feet:

Ap—0 to 13 inches; dark gray (10YR 4/1) sand; weak fine granular structure; very friable; common fine

roots; common clean sand grains; moderately acid; clear smooth boundary.

Bh—13 to 19 inches; dark reddish brown (5YR 3/2) loamy sand; common medium distinct dark brown (10YR 4/3) mottles; weak medium subangular blocky structure; friable; brittle; few fine roots; moderately acid; clear smooth boundary.

E—19 to 35 inches; yellow (10YR 7/6) sand; common fine distinct light gray (10YR 7/1), common medium distinct reddish yellow (7.5YR 6/8), and common fine distinct red (2.5YR 5/8) mottles; weak medium granular structure; friable; slightly brittle; moderately acid; clear wavy boundary.

Btg—35 to 55 inches; gray (10YR 6/1) sandy loam; common medium distinct yellowish brown (10YR 5/4) and few medium distinct brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; friable; few fine pores; few faint clay films on faces of peds; few pockets of clean sand grains; very strongly acid; gradual wavy boundary.

BCg—55 to 70 inches; gray (10YR 6/1) fine sandy loam; weak medium subangular blocky structure; very friable; common pockets of uncoated sand grains; very strongly acid.

The thickness of the solum ranges from 40 to more than 60 inches. The soils are extremely acid to moderately acid throughout, except for the surface layer in limed areas.

The Ap horizon has hue of 10YR, value of 2 to 5, and chroma of 1 or 2. It is sand, fine sand, or loamy sand. In some pedons few or common uncoated sand grains are mixed with this horizon.

The E horizon, if it occurs, has hue of 10YR, value of 5 to 7, and chroma of 1 to 6. It is sand, fine sand, or loamy sand. It is slightly brittle in some pedons.

The Bh horizon has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 to 4. It is sand, fine sand, loamy sand, or loamy fine sand. It is slightly brittle to hard in most pedons.

The E′ horizon, if it occurs, has hue of 10YR, value of 5 to 7, and chroma of 1 to 8. In most pedons it has mottles in shades of red, brown, yellow, or gray. It is sand, fine sand, loamy sand, or loamy fine sand.

The Btg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. In most pedons it has mottles in shades of red, brown, yellow, or gray. It is sandy loam or sandy clay loam.

Tawcaw Series

The Tawcaw series consists of somewhat poorly drained, slowly permeable soils that formed in clayey and loamy alluvial sediments. These nearly level soils are on low ridges on the flood plain along the Savannah River. Slopes range from 0 to 2 percent. The soils are classified as fine, kaolinitic, thermic Fluvaquentic Dystrochrepts.

Tawcaw soils are associated on the landscape with Chastain soils, which are Aquents.

Typical pedon of Tawcaw clay, in an area of Tawcaw-Chastain complex, frequently flooded, about 10 miles southwest of Estill, about 3 miles southwest of South Carolina Highway 20 on a private road on the Bostic Plantation, about 1,000 feet southwest of the second bridge, about 100 feet east of the road; at an elevation of 40 feet:

A—0 to 9 inches; yellowish red (5YR 4/6) clay; few fine distinct dark reddish gray (5YR 4/2) and few medium distinct brown (10YR 5/3) mottles; moderate medium subangular blocky structure; firm; many fine and few coarse and medium roots; few fine pores; moderately acid; clear smooth boundary.

Bw—9 to 37 inches; pale brown (10YR 6/3) clay; common medium faint light brownish gray (2.5Y 6/2), common medium distinct brownish yellow (10YR 6/6), and few medium distinct reddish gray (5YR 5/2) mottles; moderate medium prismatic structure; very firm; common fine and few medium roots; few fine pores; few faint clay films on faces of peds; few fine black concretions; few fine flakes of mica; moderately acid; gradual wavy boundary.

Bg—37 to 70 inches; light gray (10YR 7/1) clay loam; common medium distinct brownish yellow (10YR 6/8) and few medium distinct brown (7.5YR 5/2) mottles; moderate medium subangular blocky structure; firm; few fine roots; few fine pores; few faint clay films on faces of peds; few fine black mottles and concretions; few fine flakes of mica; slightly acid.

The thickness of the solum ranges from 40 to more than 70 inches. The soils are strongly acid to slightly acid. Few to many dark concretions or soft nodules of manganese are in the B horizon in most pedons.

The A horizon has hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 to 6. It has mottles in shades of yellow, brown, or gray in some pedons. It is silt loam, silty clay loam, clay loam, or clay.

The upper part of the Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. The lower part has hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 1 to 3. In most pedons this horizon has mottles in shades of red, brown, yellow, or gray. It is silty clay loam, clay loam, silty clay, or clay.

The Bg horizon, if it occurs, has hue of 7.5YR to

2.5Y, value of 4 to 7, and chroma of 1 or 2. In most pedons it has mottles in shades of red, brown, yellow, or gray. It is silty clay loam, clay loam, silty clay, or clay.

Uchee Series

The Uchee series consists of well drained, moderately slowly permeable soils that formed in loamy marine sediments. These gently sloping soils are on upland terraces. Slopes range from 2 to 6 percent. The soils are classified as loamy, siliceous, thermic Arenic Hapludults.

Uchee soils are associated on the landscape with Blanton, Bonneau, Emporia, and Norfolk soils. Blanton soils are in a Grossarenic subgroup. Bonneau soils have a solum that is more than 60 inches thick. Emporia and Norfolk soils have a subsoil within 20 inches of the surface.

Typical pedon of Uchee sand, 2 to 6 percent slopes, about 8 miles southeast of Estill, about 2.8 miles north of the junction of South Carolina Highways 62 and 20, about 500 feet east of South Carolina Highway 20; at an elevation of 75 feet:

Ap—0 to 9 inches; pale brown (10YR 6/3) sand; common medium faint very pale brown (10YR 7/3) and few medium distinct gray (10YR 5/1) mottles; single grained; loose; common fine roots; slightly acid; abrupt smooth boundary.

E—9 to 26 inches; light yellowish brown (10YR 6/4) sand that has pockets of yellowish brown (10YR 5/6) loamy sand; common medium faint very pale brown (10YR 7/3) mottles; single grained; loose; common fine roots; slightly acid; clear smooth boundary.

Bt1—26 to 33 inches; yellowish red (5YR 5/6) sandy clay loam; common medium faint strong brown (7.5YR 5/6) and common faint red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; common faint clay films on faces of peds; few coarse sand grains; moderately acid; gradual wavy boundary.

Bt2—33 to 43 inches; mottled gray (10YR 6/1), red (2.5YR 4/8), brownish yellow (10YR 6/8), and dark yellowish brown (10YR 4/6) sandy clay that has strata of sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few distinct clay films on faces of peds; few coarse sand grains; few fine flakes of mica; strongly acid; gradual wavy boundary.

BC—43 to 60 inches; mottled gray (10YR 6/1), red (2.5YR 4/6), and yellowish brown (10YR 5/8) sandy clay loam that has strata of sand, loamy sand, and sandy clay; weak medium granular structure in the sandy part and weak medium subangular blocky structure in the loamy part; very friable; strongly acid; gradual wavy boundary.

2C—60 to 75 inches; light reddish brown (5YR 6/3) coarse sandy loam; common fine distinct red (2.5YR 4/8) mottles; massive; very friable; strongly acid.

The thickness of the solum ranges from 40 to 60 inches. The soils are very strongly acid or strongly acid throughout, except for the surface layer in limed areas. The content of gravel ranges from 0 to 15 percent in the E horizon and in the upper part of the Bt horizon.

The A or Ap horizon has hue of 10YR, value of 4 to 6, and chroma of 1 to 3. It is sand or loamy sand.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 4 to 6. In most pedons it has fine or medium pockets of stripped sand grains. In some pedons it has mottles in shades of brown or yellow. It is sand or loamy sand.

The Bt horizon has hue of 5YR to 10YR, value of 5 to 7, and chroma of 5 to 8. In most pedons it has mottles in shades of red, brown, or yellow. In some pedons it has mottles in shades of gray in the lower part. It is dominantly sandy loam or sandy clay loam. In some pedons, however, the lower part of this horizon is sandy clay that has strata of loamy sand, sandy loam, or sandy clay loam.

The C or 2C horizon has hue of 5YR to 10YR, value of 5 to 7, and chroma of 1 to 8. In some pedons it has mottles in shades of red, brown, yellow, or gray. It is coarse sand, sand, loamy sand, coarse loamy sand, or coarse sandy loam or is stratified with sandy and loamy material.

Wahee Series

The Wahee series consists of somewhat poorly drained, slowly permeable soils that formed in clayey and loamy marine and alluvial sediments. These nearly level soils are on low terraces. Slopes range from 0 to 2 percent. The soils are classified as clayey, mixed, thermic Aeric Ochraquults.

Wahee soils are associated on the landscape with Argent, Cahaba, and Eulonia soils. Argent soils are Aqualfs. Cahaba and Eulonia soils are Udults.

Typical pedon of Wahee fine sandy loam, about 4.1 miles northwest of Garnett on South Carolina Highway 20, about 3 miles southwest on an unimproved county road to the Hamilton Ridge clubhouse, about 600 feet west of the clubhouse on Railroad Iron Road, about 100 feet southeast of the road, in an area of planted pine; at an elevation of 44 feet:

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium subangular blocky structure; very friable; many fine and medium and few coarse roots; very strongly acid; clear wavy boundary.

E—5 to 16 inches; pale olive (5Y 6/3) fine sandy loam; common medium distinct brownish yellow (10YR 6/6) and common medium distinct light gray (10YR 7/2) mottles; weak medium subangular blocky structure; very friable; common fine roots; few fine pores; strongly acid; gradual wavy boundary.

Btg1—16 to 24 inches; light gray (2.5Y 7/2) clay; many medium distinct brownish yellow (10YR 6/6), common medium distinct red (2.5YR 4/8), and common medium faint light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; firm; few fine roots; few fine tubular pores; common faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg2—24 to 37 inches; mottled brownish yellow (10YR 6/6), red (2.5YR 4/8), pale yellow (2.5Y 7/3), and light gray (10YR 7/2) clay; weak medium subangular blocky structure; firm; few fine roots; few fine tubular pores; common faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg3—37 to 53 inches; pale yellow (5Y 7/3) clay; common medium distinct strong brown (7.5YR 5/6) and common medium faint light gray (2.5Y 7/2) mottles; weak medium subangular blocky structure; firm; few fine tubular pores; common faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

BCg1—53 to 61 inches; light gray (5Y 7/2) fine sandy loam that has pockets of sandy clay loam; common medium distinct brownish yellow (10YR 6/6) mottles; weak fine granular structure; very friable; very strongly acid; gradual wavy boundary.

BCg2—61 to 70 inches; light gray (5Y 7/2) coarse sand that has pockets of sandy clay loam; few fine distinct brownish yellow (10YR 6/8) mottles; single grained; loose; moderately acid.

The thickness of the solum ranges from 40 to more than 60 inches. The soils are very strongly acid to moderately acid throughout, except for the surface layer in limed areas.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is sandy loam or fine sandy loam.

The E horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 3 or 4. In most pedons it has mottles in shades of yellow, brown, or gray. It is loamy fine sand, sandy loam, or fine sandy loam.

The Bt horizon, if it occurs, has hue of 10YR to 5Y, value of 5 to 7, and chroma of 3 to 8. It has mottles in shades of red, yellow, brown, or gray. It is sandy clay, silty clay, or clay.

The Btg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 to 3. In most pedons it has mottles in shades of red, yellow, brown, or gray. It is sandy clay, silty clay, or clay.

The BCg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2. It has mottles in shades of red, yellow, or brown in most pedons. It is fine sandy loam or sandy clay loam.

The Cg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2. It is coarse sand, sand, or loamy sand.

Formation of the Soils

This section relates the factors of soil formation to the soils in Hampton County and explains the processes of soil formation.

Factors of Soil Formation

The major factors of soil formation are parent material, climate, living organisms, topography, and time. Climate and living organisms are the active factors of soil formation. Their effect on the parent material is modified by relief and by the length of time that the parent material has been in place. The relative importance of each factor differs from one area to another. In some areas one factor dominates the formation of a soil and determines most of its properties. In most areas, however, the interaction of all five factors determines the kind of soil that forms.

Some understanding of the soil-forming processes can be gained by considering each of the five factors separately. It should be remembered, however, that each of the five factors is affected by all of the others.

Parent Material

Parent material is the unconsolidated mass in which a soil forms. It significantly affects the mineralogical and chemical composition of the soil. All of the soils in Hampton County formed in material distinctly removed from its origin. Most of the soils formed in marine or fluvial deposits. These deposits differ widely in content of sand, silt, and clay.

Most of the soils in the county were deposited or formed during the Pleistocene. During this period the ocean moved over the survey area, perhaps several times. As the ocean retreated, it left terraces and other formations indicating former shorelines and soils of different ages. The terraces in Hampton County, in sequence from the sea, are the Pamlico, Talbot, Penholoway, Wicomico, and Sunderland Terraces *(4)*.

The Pamlico Terrace ranges from sea level to about 25 feet above sea level. It is along the Combahee and Tulifinny Rivers and the lower reaches of the Coosawhatchie River. The soils on this terrace are younger than most of the soils at the higher elevations. The clayey soils have mixed mineralogy. Examples are Argent, Brookman, Eulonia, and Wahee soils. The loamy soils have siliceous mineralogy. Examples are Grifton, Elloree, and Nakina soils.

The Talbot Terrace ranges from 25 to 42 feet above sea level. It is along the Savannah River and the lower reaches of the Coosawhatchie and Salkehatchie Rivers. The soils on this terrace are generally similar to those on the Pamlico Terrace.

The Penholoway Terrace ranges from 42 to 70 feet above sea level. It includes the areas around Yemassee and Garnett and the areas west of Shirley, adjacent to the flood plains along the Savannah River and the upper reaches of the Coosawhatchie and Salkehatchie Rivers. The soils at elevations of 42 to 55 feet are slightly less weathered than the soils at elevations of 55 to 70 feet. The clayey soils at the lower elevations have mixed mineralogy, and the clayey soils at the higher elevations have kaolinitic mineralogy.

The Wicomico Terrace ranges from about 70 to 100 feet above sea level. It is between Varnville and Early Branch and in the Scotia and Cypress Creek area. The soils on this terrace are more highly developed than those on the lower terraces and have either siliceous or kaolinitic mineralogy. The more common soils include Goldsboro, Lynchburg, Noboco, and Rains soils.

The Sunderland Terrace ranges from about 100 to 170 feet above sea level. It makes up most of the areas around Furman, Estill, Gifford, Hampton, and Brunson and in the Hickory Grove section. The soils on this terrace are somewhat similar to those on the adjacent Wicomico Terrace. The more common soils include Autryville, Blanton, Bonneau, and Norfolk soils.

Climate

Climate, particularly precipitation and temperature, affects physical, chemical, and biological activities in soils. After it penetrates the surface, rainwater transports the dissolved mineral and organic material throughout the profile. Large amounts of rainwater leach soluble bases and transfer the less soluble and fine textured soil material downward through the profile. The amount of water that moves downward through the soil

depends on the amount of rainfall, the length of the frost-free period, the topography, and the permeability of the soil.

A high amount of rainfall, warm temperatures, and a long frost-free period have markedly affected the characteristics of the soils in Hampton County. The rainfall is fairly well distributed throughout the year. The warm, humid climate has accelerated weathering of the parent material and promoted the growth and activity of living organisms.

Living Organisms

The number and kinds of plants and animals that live in and on the soils are determined mainly by the climate and, to a lesser extent, by the parent material, the topography, and the age of the soils. Bacteria, fungi, and other micro-organisms are indispensable in soil formation. They hasten the weathering of mineral material and the decomposition of organic material. The larger plants alter the microclimate of the soils, furnish organic matter, and transfer chemical elements from the subsoil to the surface layer.

Most of the fungi, bacteria, and other micro-organisms in the soils of Hampton County are in the upper few inches of the profile. The activity of earthworms and other small invertebrates is chiefly in the A horizon and the upper part of the B horizon. These organisms slowly but continuously mix the soil material. Bacteria and fungi decompose organic material and release plant nutrients.

Animals play a secondary role in soil formation, but their influence is very significant. As they eat plants, the animals help to return plant material to the soil.

The native vegetation is chiefly loblolly pine, longleaf pine, oak, and hickory in the better drained areas of Hampton County and sweetgum, blackgum, yellow-poplar, maple, tupelo, ash, and cypress in the wetter areas. Large trees affect soil formation by bringing nutrients up from varying depths in the soils. Also, as the roots of these trees decay, they provide large openings to be filled by material from the overlying horizons.

Topography

Topography influences soil formation through its effects on moisture, vegetation, temperature, and erosion. Because of the influence of topography, several different kinds of soil can form in similar kinds of parent material. Most of the soils in Hampton County are nearly level and are in shallow depressions and drainageways and on low ridges that have gentle slopes.

Time

The length of time required for soil formation depends largely on the intensity of the other soil-forming factors. The soils in Hampton County range from immature, or young, to mature. Most of the soils in the higher areas on uplands have well developed horizons. In areas where the parent material is very sandy and in areas that are subject to flooding, little horizonation has taken place. Most alluvial soils, which formed in material deposited along streams, have not been in place long enough for the development of distinct horizons.

Morphology of the Soils

If a vertical cut is dug into a soil, several layers, or horizons, become evident. The differentiation of horizons is the result of many soil-forming processes. These processes include the accumulation of organic matter, the leaching of organic material and soluble salts, the reduction and translocation of iron, the formation of soil structure, the physical weathering caused by freezing and thawing, and the chemical weathering of primary minerals or rocks. Some of these processes are continually taking place in all soils, but the number of active processes and the degree of their activity vary from one soil to another.

Most soils have four major horizons, called the A, E, B, and C horizons. Subdivisions of these horizons are indicated by subscripts and letters. An example is a Bt2 horizon, which is a layer within the B horizon that contains translocated clay.

The A horizon is called the surface layer. It has accumulated more organic matter than the other horizons in the soils. In undisturbed areas it is called the A horizon. In areas that have been cleared of trees and plowed, it is called the Ap horizon. Leon and Pantego are examples of soils that have a distinct, dark A or Ap horizon.

The E horizon is the zone of maximum leaching, or eluviation, of clay and iron in the profile. It is the lightest colored horizon in areas where considerable leaching has taken place. It is well expressed in Bonneau and Ocilla soils.

The B horizon is called the subsoil. It is below the A or E horizon. It is the horizon of maximum accumulation, or illuviation, of clay, iron, aluminum, and other compounds. Goldsboro, Norfolk, and Wahee are examples of soils that have a well expressed B horizon. In some soils, such as Chipley and Rutlege soils, a B horizon has not formed and the C horizon directly underlies the A horizon.

The C horizon is made up of material that may be modified by weathering but has been little altered by the soil-forming processes.

The well drained and moderately well drained soils in Hampton County have a yellowish brown or reddish subsoil. The color of the subsoil is derived mainly from thin coatings of iron oxide on the sand, silt, and clay particles. Soils are considered well drained if they are free of grayish mottles (those with chroma of 2 or less) to a depth of at least 30 inches. Examples are Noboco and Bonneau soils. Moderately well drained soils are wet for short periods and are generally free of grayish mottles to a depth of about 15 to 20 inches. Goldsboro and Chipley soils are examples.

Poorly drained soils are wet for long periods. They are dominantly grayish throughout and have mottles in shades of red, yellow, or brown. Coxville and Rains soils are examples.

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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.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

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.

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 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.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

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 film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax vegetation. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

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.

Colluvium. Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

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.

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.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

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.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.
Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, for example, fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil is not a source of gravel or sand for construction purposes.

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.

Fast intake (in tables). The rapid movement of water into the soil.

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.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

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, or clay.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope. The inclined surface at the base of a hill.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors 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 7.6 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 (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water (geology). Water filling all the unblocked pores of the 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.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric and the more decomposed sapric material.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, any plowed or disturbed surface layer.

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 (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) granular, prismatic, or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying 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, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Hard, consolidated bedrock beneath the soil. The bedrock 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.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

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.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled

by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

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.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

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.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

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).

Muck. Dark colored, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

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.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

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 affecting 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.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay 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.

Poor filter (in tables). Because of rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

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.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

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). 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.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

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. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

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 substratum. 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.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

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.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

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 separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

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 substratum. The living roots and plant and animal activities are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind erosion 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 erosion 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.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E 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 about 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 (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."

Thin layer (in tables). A layer of otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

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.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse 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. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1951-83 at Hampton, South Carolina)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	60.6	36.2	48.4	80	15	104	3.68	2.20	5.09	6	0.1
February----	63.8	38.0	50.9	83	17	123	3.80	2.00	5.41	6	.7
March-------	71.2	44.7	58.0	89	24	284	4.43	2.10	6.39	7	.0
April-------	79.3	52.1	65.7	92	33	478	2.93	1.49	4.27	5	.0
May---------	85.4	59.7	72.6	98	43	706	4.86	2.74	6.94	6	.0
June--------	89.7	66.1	77.9	101	53	849	5.15	2.88	7.30	7	.0
July--------	92.0	69.5	80.8	102	61	960	5.88	2.96	7.96	8	.0
August------	91.3	69.0	80.1	103	60	941	5.30	2.60	7.72	7	.0
September---	86.3	64.3	75.3	96	47	765	4.53	2.00	6.62	6	.0
October-----	78.5	52.4	65.5	92	31	489	2.32	.58	3.73	4	.0
November----	70.0	43.0	56.5	85	29	234	2.02	.75	2.98	4	.0
December----	62.6	37.3	49.9	81	15	119	3.05	1.80	4.19	5	.1
Yearly:											
Average---	77.6	52.7	65.1	---	---	---	---	---	---	---	---
Extreme---	---	---	---	107	---	---	---	---	---	---	---
Total-----	---	---	---	---	---	6,047	47.95	40.10	59.50	71	.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 degrees F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1951-83 at Hampton, South 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--	Jan. 17	Feb. 4	Mar. 1
2 years in 10 later than--	Jan. 26	Feb. 13	Mar. 7
5 years in 10 later than--	Feb. 12	Mar. 1	Mar. 18
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 8	Nov. 6	Oct. 26
2 years in 10 earlier than--	Nov. 17	Nov. 11	Oct. 30
5 years in 10 earlier than--	Dec. 4	Nov. 22	Nov. 9

TABLE 3.--GROWING SEASON

(Recorded in the period 1951-83 at Hampton, South 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	340	293	212
8 years in 10	320	283	220
5 years in 10	294	266	235
2 years in 10	270	248	251
1 year in 10	258	239	259

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
AgB	Alaga sand, moderately wet, 0 to 6 percent slopes	1,323	0.4
ApB	Alpin sand, 0 to 6 percent slopes	607	0.2
Ar	Argent fine sandy loam, ponded	8,910	2.5
AtA	Autryville sand, 0 to 2 percent slopes	14,993	4.2
AtB	Autryville sand, 2 to 6 percent slopes	1,189	0.3
BaA	Blanton fine sand, 0 to 2 percent slopes	7,174	2.0
BaB	Blanton fine sand, 2 to 6 percent slopes	5,220	1.5
BaC	Blanton fine sand, 6 to 10 percent slopes	359	0.1
BnA	Blanton fine sand, moderately wet, 0 to 2 percent slopes	10,615	2.9
BoA	Bonneau fine sand, 0 to 2 percent slopes	21,025	5.8
BoB	Bonneau fine sand, 2 to 6 percent slopes	5,035	1.4
Br	Brookman clay loam, ponded	3,500	1.0
By	Byars loam, ponded	1,446	0.4
CaA	Cahaba loamy sand, 0 to 2 percent slopes	492	0.1
CaB	Cahaba loamy sand, 2 to 6 percent slopes	131	*
Ce	Centenary sand	1,726	0.5
ChA	Chipley fine sand, 0 to 2 percent slopes	3,512	1.0
Cx	Coxville loam	9,123	2.5
Ec	Echaw sand	1,024	0.3
Eo	Elloree loamy fine sand, occasionally flooded	4,966	1.4
EpB	Emporia loamy sand, 2 to 6 percent slopes	4,777	1.3
EpC	Emporia loamy sand, 6 to 10 percent slopes	332	0.1
EuA	Eulonia fine sandy loam, 0 to 2 percent slopes	7,058	2.0
EuB	Eulonia fine sandy loam, 2 to 6 percent slopes	1,355	0.4
FoB	Foxworth fine sand, 0 to 6 percent slopes	835	0.2
GoA	Goldsboro loamy sand, 0 to 2 percent slopes	27,716	7.7
Gr	Grifton-Osier complex, frequently flooded	18,641	5.2
Hp	Haplaquents, loamy	535	0.1
LaB	Lakeland sand, 0 to 6 percent slopes	1,035	0.3
Le	Leon sand	1,033	0.3
Ly	Lynchburg loamy fine sand	20,124	5.6
Na	Nakina fine sandy loam, occasionally flooded	1,641	0.5
NeA	Nansemond loamy sand, 0 to 2 percent slopes	1,245	0.3
NoA	Noboco loamy sand, 0 to 2 percent slopes	14,316	4.0
NoB	Noboco loamy sand, 2 to 6 percent slopes	507	0.1
NrA	Norfolk loamy sand, 0 to 2 percent slopes	16,768	4.7
NrB	Norfolk loamy sand, 2 to 6 percent slopes	2,546	0.7
OcA	Ocilla fine sand, 0 to 2 percent slopes	23,880	6.6
Oe	Osier loamy sand	1,254	0.3
Oy	Osier-Pickney complex, frequently flooded	6,916	1.9
Pa	Pantego loam, ponded	9,138	2.5
Pe	Pelham loamy sand	12,331	3.4
Pk	Pickney loamy fine sand, ponded	6,079	1.7
Pm	Plummer loamy fine sand	2,427	0.7
Pu	Pungo muck, ponded	825	0.2
Ra	Rains fine sandy loam	42,185	11.7
Re	Rembert sandy loam, ponded	368	0.1
Ru	Rutlege loamy fine sand, ponded	3,168	0.9
Se	Seagate sand	6,746	1.9
Tc	Tawcaw-Chastain complex, frequently flooded	11,521	3.2
UcB	Uchee sand, 2 to 6 percent slopes	2,709	0.8
Wa	Wahee fine sandy loam	5,096	1.4
	Water	2,523	0.7
	Total	360,000	100.0

* Less than 0.1 percent.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE

(Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Soil name and map symbol	Land capability	Corn	Cotton lint	Wheat	Watermelons	Peanuts	Soybeans	Improved bermudagrass
		Bu	Lbs	Bu	Tons	Lbs	Bu	AUM*
AgB---------- Alaga	IIIs	65	---	25	---	2,700	20	8.0
ApB---------- Alpin	IVs	---	---	---	4.4	2,000	---	8.0
Ar---------- Argent	VIw	---	---	---	---	---	---	---
AtA, AtB-------- Autryville	IIs	75	600	---	---	3,000	25	9.0
BaA, BaB-------- Blanton	IIIs	60	---	---	12.0	2,200	25	8.0
BaC---------- Blanton	IVs	50	---	---	10.0	2,000	20	7.5
BnA---------- Blanton	IIIs	60	---	---	12.0	---	25	7.0
BoA, BoB-------- Bonneau	IIs	85	700	---	14.0	2,900	30	8.5
Br---------- Brookman	VIIw	---	---	---	---	---	---	---
By---------- Byars	VIw	---	---	---	---	---	---	---
CaA---------- Cahaba	I	100	800	---	---	---	35	10.0
CaB---------- Cahaba	IIe	85	750	---	---	---	30	9.5
Ce---------- Centenary	IIIs	65	---	---	---	---	20	7.5
ChA---------- Chipley	IIIs	50	---	---	5.0	2,200	20	8.0
Cx---------- Coxville	IIIw	110	---	50	---	---	40	---
Ec---------- Echaw	IIIs	70	---	---	---	---	30	7.5
Eo---------- Elloree	VIw	---	---	---	---	---	---	---
EpB---------- Emporia	IIe	100	600	50	---	3,700	30	9.0
EpC---------- Emporia	IIIe	90	550	45	---	3,200	25	8.5

See footnotes at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Cotton lint	Wheat	Watermelons	Peanuts	Soybeans	Improved bermuda-grass
		Bu	Lbs	Bu	Tons	Lbs	Bu	AUM*
EuA---------- Eulonia	IIw	100	---	---	---	---	40	9.5
EuB---------- Eulonia	IIe	90	---	---	---	---	35	10.0
FoB---------- Foxworth	IIIs	55	---	---	5.0	---	23	7.0
GoA---------- Goldsboro	IIw	125	700	60	---	3,600	42	9.0
Gr**---------- Grifton-Osier	VIIw	---	---	---	---	---	---	---
Hp---------- Haplaquents	VIw	---	---	---	---	---	---	---
LaB---------- Lakeland	IVs	55	---	---	---	2,000	20	7.0
Le---------- Leon	IVw	50	---	---	---	---	---	---
Ly---------- Lynchburg	IIw	115	---	---	---	---	45	---
Na---------- Nakina	VIw	---	---	---	---	---	---	12.0
NeA---------- Nansemond	IIw	110	650	40	---	3,900	35	8.0
NoA---------- Noboco	I	115	700	60	---	4,000	45	9.5
NoB---------- Noboco	IIe	110	700	55	---	3,700	40	9.5
NrA---------- Norfolk	I	110	700	60	---	4,000	40	10.0
NrB---------- Norfolk	IIe	100	650	55	---	3,700	35	10.0
OcA---------- Ocilla	IIIw	75	---	---	---	2,200	35	8.5
Oe---------- Osier	Vw	---	---	---	---	---	---	---
Oy**---------- Osier-Pickney	VIIw	---	---	---	---	---	---	---
Pa---------- Pantego	VIIw	---	---	---	---	---	---	---
Pe---------- Pelham	Vw	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Cotton lint	Wheat	Watermelons	Peanuts	Soybeans	Improved bermuda-grass
		Bu	Lbs	Bu	Tons	Lbs	Bu	AUM*
Pk---------- Pickney	VIw	---	---	---	---	---	---	---
Pm---------- Plummer	IVw	---	---	---	---	---	---	---
Pu---------- Pungo	VIIw	---	---	---	---	---	---	---
Ra---------- Rains	IIIw	110	---	---	---	---	40	---
Re---------- Rembert	VIw	---	---	---	---	---	---	---
Ru---------- Rutlege	VIIw	---	---	---	---	---	---	---
Se---------- Seagate	IIIw	75	---	---	---	---	30	---
Tc**---------- Tawcaw-Chastain	VIw	---	---	---	---	---	---	---
UcB---------- Uchee	IIs	70	550	---	---	3,000	30	8.5
Wa---------- Wahee	IIw	110	---	---	---	---	45	---

* Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

(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	31,576	---	---	---
II	115,506	9,316	61,239	44,951
III	113,695	332	81,934	31,429
IV	5,461	---	3,460	2,001
V	13,585	---	13,585	---
VI	35,466	---	35,466	---
VII	42,188	---	42,188	---
VIII	---	---	---	---

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

(Absence of an entry indicates that information was not available)

Soil name and map symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Volume*	Trees to plant
AgB---------- Alaga	Slight	Moderate	Moderate	Slight	Slight	Loblolly pine-------	80	114	Loblolly pine, longleaf pine.
						Longleaf pine-------	70	86	
ApB---------- Alpin	Slight	Moderate	Moderate	Slight	Slight	Loblolly pine-------	85	114	Slash pine, loblolly pine, longleaf pine.
						Slash pine----------	90	157	
						Longleaf pine-------	70	86	
						Turkey oak----------	---	---	
						Post oak----------	---	---	
						Blackjack oak-------	---	---	
						Bluejack oak--------	---	---	
Ar---------- Argent	Slight	Severe	Severe	Severe	Severe	Sweetgum----------	95	114	Sweetgum, slash pine, sweetgum, American sycamore.
						Baldcypress---------	---	172	
						Water oak----------	---	129	
						Water tupelo--------	---	---	
						Red maple----------	---	---	
AtA, AtB-------- Autryville	Slight	Moderate	Moderate	Slight	Slight	Loblolly pine-------	77	100	Loblolly pine, longleaf pine, slash pine.
						Longleaf pine-------	60	57	
						Slash pine----------	92	172	
						Southern red oak----	---	---	
						Hickory----------	---	---	
						Sweetgum----------	---	---	
						Red maple----------	---	---	
						White oak----------	---	---	
						Post oak----------	---	---	
BaA, BaB, BaC--- Blanton	Slight	Moderate	Moderate	Slight	Slight	Slash pine----------	90	157	Slash pine, loblolly pine, longleaf pine.
						Loblolly pine-------	85	114	
						Longleaf pine-------	70	86	
						Bluejack oak--------	---	---	
						Turkey oak----------	---	---	
						Southern red oak----	---	---	
BnA---------- Blanton	Slight	Moderate	Moderate	Slight	Moderate	Slash pine----------	85	154	Slash pine, loblolly pine, longleaf pine.
						Loblolly pine-------	85	114	
						Longleaf pine-------	75	86	
						Bluejack oak--------	---	---	
						Turkey oak----------	---	---	
BoA, BoB-------- Bonneau	Slight	Moderate	Moderate	Slight	Slight	Loblolly pine-------	95	143	Loblolly pine, longleaf pine.
						Longleaf pine-------	75	86	
						White oak----------	---	---	
						Hickory----------	---	---	
Br---------- Brookman	Slight	Severe	Severe	Severe	Severe	Baldcypress---------	75	43	---
						Sweetgum----------	100	143	
						Pond pine----------	---	---	
						Water oak----------	---	---	
						Red maple----------	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Volume*	Trees to plant
By---------- Byars	Slight	Severe	Severe	Severe	Severe	Water tupelo--------	90	143	Sweetgum.
						Sweetgum----------	90	100	
						Blackgum----------	---	---	
						Baldcypress---------	---	---	
						Water oak----------	90	86	
						Red maple----------	---	---	
CaA, CaB-------- Cahaba	Slight	Slight	Slight	Slight	Slight	Loblolly pine-------	87	129	Loblolly pine, slash pine, sweetgum, water oak.
						Slash pine----------	91	172	
						Shortleaf pine------	70	114	
						Yellow-poplar-------	---	---	
						Sweetgum----------	90	100	
						Southern red oak----	---	---	
						Water oak----------	---	---	
Ce---------- Centenary	Slight	Severe	Moderate	Slight	Slight	Slash pine----------	85	157	Slash pine, loblolly pine.
						Loblolly pine-------	85	114	
						Longleaf pine-------	72	86	
ChA---------- Chipley	Slight	Moderate	Slight	Slight	Moderate	Slash pine----------	90	157	Slash pine, loblolly pine.
						Loblolly pine-------	90	129	
						Longleaf pine-------	80	100	
						Post oak----------	---	---	
						Turkey oak----------	---	---	
						Blackjack oak-------	---	---	
Cx---------- Coxville	Slight	Moderate	Moderate	Severe	Severe	Loblolly pine-------	91	129	Loblolly pine, sweetgum.
						Longleaf pine-------	77	100	
						Sweetgum----------	84	86	
						Yellow-poplar-------	86	86	
						Southern red oak----	87	72	
						Water oak----------	75	72	
						Willow oak----------	88	86	
Ec---------- Echaw	Slight	Severe	Moderate	Slight	Slight	Longleaf pine-------	68	72	Longleaf pine, loblolly pine, slash pine, shortleaf pine.
						Loblolly pine-------	85	129	
						Slash pine----------	80	143	
						Turkey oak----------	---	---	
						Bluejack oak--------	---	---	
						Post oak----------	---	---	
Eo---------- Elloree	Slight	Severe	Severe	Severe	Severe	Loblolly pine-------	90	129	Loblolly pine, sweetgum, yellow-poplar.
						Sweetgum----------	---	---	
						Yellow-poplar-------	---	---	
						Red maple----------	---	---	
						Water oak----------	---	---	
EpB, EpC-------- Emporia	Slight	Slight	Moderate	Slight	Moderate	Loblolly pine-------	75	100	Loblolly pine, sweetgum.
						Southern red oak----	70	57	
EuA, EuB-------- Eulonia	Slight	Slight	Slight	Slight	Moderate	Loblolly pine-------	90	129	Loblolly pine, slash pine, American sycamore, sweetgum, yellow-poplar.
						Slash pine----------	88	157	
						Water oak----------	90	86	
						Sweetgum----------	90	100	
						Blackgum----------	---	---	
						Southern red oak----	---	---	
						Longleaf pine-------	85	114	
						Hickory----------	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Volume*	Trees to plant
FoB---------- Foxworth	Slight	Moderate	Moderate	Slight	Slight	Slash pine----------	80	143	Slash pine, loblolly pine.
						Longleaf pine-------	65	72	
						Turkey oak----------	---	---	
						Live oak----------	---	---	
						Post oak----------	---	---	
						Bluejack oak--------	---	---	
						Laurel oak----------	---	---	
GoA---------- Goldsboro	Slight	Slight	Slight	Slight	Moderate	Loblolly pine-------	90	129	Loblolly pine.
						Longleaf pine-------	73	86	
						Slash pine----------	94	172	
						Sweetgum----------	---	---	
						Southern red oak----	---	---	
						White oak----------	---	---	
						Water oak----------	---	---	
						Yellow-poplar-------	---	---	
Gr**:									
Grifton--------	Slight	Severe	Severe	Severe	Severe	Yellow-poplar-------	108	114	Loblolly pine, sweetgum.
						Sweetgum----------	---	---	
						Baldcypress---------	---	---	
						Red maple----------	---	---	
						American sycamore---	---	---	
						Water tupelo--------	---	---	
Osier----------	Slight	Severe	Severe	Severe	Severe	Slash pine----------	85	157	Slash pine, loblolly pine.
						Loblolly pine-------	87	129	
						Longleaf pine-------	69	72	
Hp---------- Haplaquents	Slight	Severe	Severe	Severe	Severe	Sweetgum----------	70	57	Loblolly pine, longleaf pine, sweetgum, American sycamore.
LaB---------- Lakeland	Slight	Moderate	Moderate	Slight	Slight	Slash pine----------	75	129	Slash pine, loblolly pine, longleaf pine.
						Loblolly pine-------	75	100	
						Longleaf pine-------	60	57	
						Turkey oak----------	---	---	
						Blackjack oak-------	---	---	
						Post oak----------	---	---	
Le---------- Leon	Slight	Moderate	Moderate	Slight	Severe	Slash pine----------	80	143	Slash pine, loblolly pine.
						Longleaf pine-------	70	86	
						Loblolly pine-------	75	100	
Ly---------- Lynchburg	Slight	Moderate	Slight	Slight	Severe	Loblolly pine-------	86	129	Loblolly pine, American sycamore, sweetgum.
						Longleaf pine-------	74	86	
						Yellow-poplar-------	92	86	
						Sweetgum----------	90	100	
						Southern red oak----	---	---	
						White oak----------	---	---	
						Blackgum----------	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Volume*	Trees to plant
Na---------- Nakina	Slight	Severe	Severe	Severe	Severe	Loblolly pine-------	90	129	Loblolly pine, sweetgum.
						Sweetgum----------	---	---	
						Water oak----------	---	---	
						Blackgum----------	---	---	
						Swamp chestnut oak--	---	---	
						Red maple----------	---	---	
						Baldcypress---------	---	---	
						Water tupelo--------	---	---	
NeA---------- Nansemond	Slight	Moderate	Moderate	Slight	Moderate	Loblolly pine-------	86	129	Loblolly pine, yellow-poplar, black walnut, sweetgum.
						Sweetgum----------	90	100	
						Shortleaf pine------	77	129	
						Yellow-poplar-------	90	86	
						White oak----------	---	---	
NoA, NoB-------- Noboco	Slight	Slight	Slight	Slight	Moderate	Loblolly pine-------	90	129	Loblolly pine, American sycamore, sweetgum.
						Longleaf pine-------	80	100	
						Southern red oak----	---	---	
						Sweetgum----------	---	---	
NrA, NrB-------- Norfolk	Slight	Slight	Slight	Slight	Slight	Loblolly pine-------	84	114	Loblolly pine.
						Longleaf pine-------	77	100	
						Slash pine----------	78	143	
						Southern red oak----	---	---	
						White oak----------	---	---	
						Yellow-poplar-------	---	---	
						Blackgum----------	---	---	
						Hickory----------	---	---	
OcA---------- Ocilla	Slight	Moderate	Moderate	Slight	Moderate	Loblolly pine-------	85	114	Loblolly pine, slash pine.
						Slash pine----------	90	157	
						Longleaf pine-------	77	100	
Oe---------- Osier	Slight	Severe	Severe	Severe	Severe	Slash pine----------	85	157	Slash pine, loblolly pine.
						Loblolly pine-------	87	129	
						Longleaf pine-------	69	72	
Oy**:									
Osier----------	Slight	Severe	Severe	Severe	Severe	Slash pine----------	85	157	Slash pine, loblolly pine.
						Loblolly pine-------	87	129	
						Longleaf pine-------	69	72	
Pickney--------	Slight	Severe	Severe	Severe	Severe	Sweetgum----------	90	100	Water tupelo, sweetgum, baldcypress.
						Water tupelo--------	---	---	
						Water oak----------	---	---	
						Pond pine----------	---	---	
						Yellow-poplar-------	---	---	
						Blackgum----------	---	---	
						Baldcypress---------	---	---	
Pa---------- Pantego	Slight	Severe	Severe	Severe	Severe	Baldcypress---------	108	100	Baldcypress.
						Pond pine----------	73	57	
						Water tupelo--------	---	---	
						Water oak----------	---	---	
						Red maple----------	---	---	
						Sweetbay----------	---	---	
						Blackgum----------	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Volume*	Trees to plant
Pe---------- Pelham	Slight	Severe	Severe	Severe	Severe	Slash pine----------	90	157	Slash pine, loblolly pine.
						Loblolly pine-------	90	129	
						Longleaf pine-------	80	100	
						Sweetgum----------	80	86	
						Blackgum----------	80	114	
						Water oak----------	80	72	
Pk---------- Pickney	Slight	Severe	Severe	Severe	Severe	Sweetgum----------	90	100	Baldcypress.
						Baldcypress---------	---	---	
						Water tupelo--------	---	---	
						Red maple----------	---	---	
						Water oak----------	---	---	
Pm---------- Plummer	Slight	Severe	Severe	Severe	Severe	Slash pine----------	88	157	Loblolly pine, slash pine.
						Loblolly pine-------	91	129	
						Longleaf pine-------	70	86	
Pu---------- Pungo	Slight	Severe	Severe	Severe	Severe	Pond pine----------	55	29	Pond pine.
						Red maple----------	---	---	
						Sweetbay----------	---	---	
						Baldcypress---------	---	---	
						Swamp tupelo--------	---	---	
						Atlantic white-cedar	---	---	
Ra---------- Rains	Slight	Moderate	Moderate	Severe	Severe	Loblolly pine-------	94	143	Loblolly pine, sweetgum, American sycamore.
						Sweetgum----------	90	100	
Re---------- Rembert	Slight	Severe	Severe	Severe	Severe	Sweetgum----------	90	100	Eastern cottonwood, baldcypress, water tupelo.
						Baldcypress---------	---	---	
						Water tupelo--------	---	---	
Ru---------- Rutlege	Slight	Severe	Severe	Severe	Severe	Baldcypress---------	108	100	---
						Blackgum----------	---	---	
						Yellow-poplar-------	---	---	
						Water tupelo--------	---	---	
						Sweetgum----------	---	---	
						Red maple----------	---	---	
Se---------- Seagate	Slight	Moderate	Moderate	Slight	Moderate	Slash pine----------	80	143	Slash pine, loblolly pine.
						Loblolly pine-------	80	114	
						Longleaf pine-------	70	86	
Tc**:									
Tawcaw---------	Slight	Moderate	Severe	Moderate	Moderate	Sweetgum----------	95	114	Sweetgum, water tupelo.
						Water oak----------	---	---	
						Water tupelo--------	---	---	
Chastain-------	Slight	Severe	Severe	Severe	Severe	Sweetgum----------	95	114	Sweetgum.
						Baldcypress---------	---	---	
						Water tupelo--------	---	---	
						Water oak----------	---	---	
UcB---------- Uchee	Slight	Moderate	Moderate	Slight	Slight	Loblolly pine-------	80	114	Loblolly pine, longleaf pine, slash pine.
						Longleaf pine-------	67	72	
						Shortleaf pine------	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Management concerns					Potential productivity			Trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume*	
Wa---------- Wahee	Slight	Moderate	Slight	Moderate	Severe	Loblolly pine-------	86	129	Loblolly pine, slash pine, sweetgum, American sycamore, water oak.
						Slash pine----------	86	157	
						Sweetgum----------	90	100	
						Blackgum----------	---	---	
						Water oak----------	---	---	
						Swamp chestnut oak--	---	---	
						Willow oak----------	---	---	

* Volume is the yield in cubic feet per acre per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--RECREATIONAL DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe")

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AgB Alaga	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
ApB Alpin	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Ar Argent	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
AtA, AtB Autryville	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
BaA, BaB Blanton	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
BaC Blanton	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.
BnA Blanton	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
BoA, BoB Bonneau	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty.
Br Brookman	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
By Byars	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
CaA Cahaba	Slight	Slight	Slight	Slight	Slight.
CaB Cahaba	Slight	Slight	Moderate: slope.	Slight	Slight.
Ce Centenary	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
ChA Chipley	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Cx Coxville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ec Echaw	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Eo Elloree	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
EpB Emporia	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones, percs slowly.	Slight	Moderate: droughty.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
EpC Emporia	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: droughty, slope.
EuA Eulonia	Moderate: percs slowly, wetness.	Moderate: wetness, percs slowly.	Moderate: percs slowly, wetness.	Moderate: wetness.	Moderate: wetness.
EuB Eulonia	Moderate: percs slowly, wetness.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
FoB Foxworth	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty.
GoA Goldsboro	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Slight	Slight.
Gr*:					
Grifton	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Osier	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Hp Haplaquents	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
LaB Lakeland	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
Le Leon	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
Ly Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Na Nakina	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
NeA Nansemond	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
NoA Noboco	Slight	Slight	Slight	Slight	Slight.
NoB Noboco	Slight	Slight	Moderate: slope.	Slight	Slight.
NrA Norfolk	Slight	Slight	Slight	Slight	Moderate: droughty.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
NrB Norfolk	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
OcA Ocilla	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: wetness, droughty, too sandy.
Oe Osier	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
Oy*:					
Osier	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Pickney	Severe: flooding, ponding.	Severe: ponding.	Severe: flooding, ponding.	Severe: ponding.	Severe: flooding, ponding.
Pa Pantego	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Pe Pelham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Pk Pickney	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Pm Plummer	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
Pu Pungo	Severe: ponding, excess humus.	Severe: ponding, excess humus, too acid.	Severe: excess humus, ponding, too acid.	Severe: ponding, excess humus.	Severe: ponding, excess humus, too acid.
Ra Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Re Rembert	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Ru Rutlege	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Se Seagate	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Tc*:					
Tawcaw	Severe: flooding, too clayey.	Severe: too clayey.	Severe: too clayey, flooding.	Severe: too clayey.	Severe: flooding.
Chastain	Severe: flooding, wetness, too clayey.	Severe: wetness, too clayey.	Severe: too clayey, wetness, flooding.	Severe: wetness, too clayey.	Severe: wetness, flooding, too clayey.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
UcB---------- Uchee	Severe: too sandy.	Severe: too sandy.	Moderate: slope, small stones.	Severe: too sandy.	Moderate: droughty.
Wa---------- Wahee	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--WILDLIFE HABITAT

(See text for definitions of "good," "fair," "poor," and "very poor")

Soil name and map symbol	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
AgB---------- Alaga	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
ApB---------- Alpin	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Ar---------- Argent	Very poor.	Very poor.	Poor	Fair	Fair	Good	Good	Very poor.	Poor	Good.
AtA, AtB---------- Autryville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
BaA, BaB, BaC, BnA- Blanton	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
BoA, BoB---------- Bonneau	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Br---------- Brookman	Very poor.	Very poor.	Very poor.	Poor	Poor	Fair	Good	Very poor.	Very poor.	Good.
By---------- Byars	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
CaA, CaB---------- Cahaba	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Ce---------- Centenary	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
ChA---------- Chipley	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Cx---------- Coxville	Good	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor.
Ec---------- Echaw	Poor	Fair	Good	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
Eo---------- Elloree	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
EpB---------- Emporia	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EpC---------- Emporia	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EuA, EuB---------- Eulonia	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
FoB---------- Foxworth	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
GoA---------- Goldsboro	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Gr*:										
Grifton	Very poor.	Very poor.	Poor	Fair	Poor	Good	Fair	Very poor.	Fair	Fair.
Osier	Very poor.	Poor	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair.
Hp Haplaquents	Very poor.	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair.
LaB Lakeland	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Le Leon	Poor	Fair	Fair	Poor	Fair	Poor	Fair	Fair	Fair	Poor.
Ly Lynchburg	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Na Nakina	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Good	Good.
NeA Nansemond	Poor	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
NoA Noboco	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
NoB Noboco	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
NrA, NrB Norfolk	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
OcA Ocilla	Fair	Fair	Good	Fair	Good	Fair	Fair	Fair	Good	Fair.
Oe Osier	Very poor.	Poor	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair.
Oy*:										
Osier	Very poor.	Poor	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair.
Pickney	Very poor.	Poor	Fair	Poor	Poor	Good	Very poor.	Poor	Poor	Good.
Pa Pantego	Very poor.	Very poor.	Very poor.	Fair	Poor	Good	Good	Very poor.	Poor	Good.
Pe Pelham	Poor	Poor	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair.
Pk Pickney	Very poor.	Very poor.	Very poor.	Poor	Poor	Good	Good	Very poor.	Poor	Good.
Pm Plummer	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Pu: Pungo	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Ra: Rains	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Good	Good.
Re: Rembert	Very poor.	Poor	Very poor.	Poor	Very poor.	Good	Good	Very poor.	Poor	Good.
Ru: Rutlege	Very poor.	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair.
Se: Seagate	Poor	Poor	Fair	Poor	Poor	Poor	Poor	Poor	Poor	Poor.
Tc*:										
Tawcaw	Very poor.	Poor	Poor	Good	Fair	Fair	Fair	Poor	Fair	Fair.
Chastain	Very poor.	Poor	Poor	Fair	Poor	Good	Good	Poor	Fair	Good.
UcB: Uchee	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Wa: Wahee	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--BUILDING SITE DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AgB---------- Alaga	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty, too sandy.
ApB---------- Alpin	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Severe: droughty.
Ar---------- Argent	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: low strength, ponding.	Severe: ponding.
AtA---------- Autryville	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty, too sandy.
AtB---------- Autryville	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Moderate: slope.	Slight---------	Moderate: droughty, too sandy.
BaA---------- Blanton	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Severe: droughty.
BaB---------- Blanton	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Moderate: slope.	Slight---------	Severe: droughty.
BaC---------- Blanton	Severe: cutbanks cave.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: slope.	Severe: droughty.
BnA---------- Blanton	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Severe: droughty.
BoA---------- Bonneau	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty.
BoB---------- Bonneau	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Moderate: slope.	Slight---------	Moderate: droughty.
Br---------- Brookman	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: low strength, ponding.	Severe: ponding.
By---------- Byars	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
CaA---------- Cahaba	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Slight.
CaB---------- Cahaba	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
Ce---------- Centenary	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Severe: droughty.
ChA---------- Chipley	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: droughty.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Cx---------- Coxville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ec---------- Echaw	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Severe: droughty.
Eo---------- Elloree	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness.
EpB---------- Emporia	Moderate: too clayey, wetness.	Slight---------	Moderate: wetness, shrink-swell.	Moderate: slope.	Moderate: low strength.	Moderate: droughty.
EpC---------- Emporia	Moderate: too clayey, wetness, slope.	Moderate: slope.	Moderate: wetness, slope, shrink-swell.	Severe: slope.	Moderate: low strength, slope.	Moderate: droughty, slope.
EuA---------- Eulonia	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: low strength.	Moderate: wetness.
EuB---------- Eulonia	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: low strength.	Moderate: wetness.
FoB---------- Foxworth	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty.
GoA---------- Goldsboro	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Slight.
Gr*:						
Grifton----------	Severe: wetness, cutbanks cave.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.
Osier----------	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.
Hp---------- Haplaquents	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
LaB---------- Lakeland	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: droughty, too sandy.
Le---------- Leon	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ly---------- Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Na---------- Nakina	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
NeA---------- Nansemond	Severe: wetness, cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
NoA---------- Noboco	Moderate: wetness.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Slight.
NoB---------- Noboco	Moderate: wetness.	Slight---------	Moderate: wetness.	Moderate: slope.	Slight---------	Slight.
NrA---------- Norfolk	Moderate: wetness.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Slight.
NrB---------- Norfolk	Moderate: wetness.	Slight---------	Moderate: wetness.	Moderate: slope.	Slight---------	Slight.
OcA---------- Ocilla	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, droughty, too sandy.
Oe---------- Osier	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.
Oy*:						
Osier----------	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.
Pickney----------	Severe: cutbanks cave, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.
Pa---------- Pantego	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Pe---------- Pelham	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Pk---------- Pickney	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Pm---------- Plummer	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Pu---------- Pungo	Severe: excess humus, ponding.	Severe: subsides, ponding, low strength.	Severe: subsides, ponding.	Severe: subsides, ponding, low strength.	Severe: subsides, ponding, low strength.	Severe: ponding, excess humus, too acid.
Ra---------- Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Re---------- Rembert	Severe: ponding, cutbanks cave.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Ru---------- Rutlege	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Se---------- Seagate	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: droughty.
Tc*:						
Tawcaw----------	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Chastain---------	Severe: wetness, cutbanks cave.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding, too clayey.
UcB---------- Uchee	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Moderate: slope.	Slight---------	Moderate: droughty.
Wa---------- Wahee	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--SANITARY FACILITIES

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "good," and other terms. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AgB---------- Alaga	Moderate: wetness.	Severe: seepage.	Severe: seepage, wetness, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
ApB---------- Alpin	Slight----------	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
Ar---------- Argent	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding, too clayey.	Severe: ponding.	Poor: too clayey, hard to pack, ponding.
AtA, AtB---------- Autryville	Moderate: wetness.	Severe: seepage.	Severe: wetness, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
BaA, BaB---------- Blanton	Moderate: wetness.	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy.
BaC---------- Blanton	Moderate: wetness, slope.	Severe: seepage, slope.	Severe: too sandy.	Severe: seepage.	Poor: too sandy.
BnA---------- Blanton	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: too sandy.	Severe: seepage.	Poor: too sandy.
BoA, BoB---------- Bonneau	Severe: wetness.	Severe: seepage.	Severe: wetness.	Severe: seepage.	Good.
Br---------- Brookman	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding, too clayey.	Severe: ponding.	Poor: too clayey, hard to pack, ponding.
By---------- Byars	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Poor: ponding.
CaA, CaB---------- Cahaba	Slight----------	Severe: seepage.	Severe: seepage.	Slight----------	Fair: thin layer.
Ce---------- Centenary	Severe: wetness, poor filter.	Severe: seepage.	Severe: seepage, wetness, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
ChA---------- Chipley	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
Cx---------- Coxville	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ec---------- Echaw	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
Eo---------- Elloree	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: wetness.
EpB---------- Emporia	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Moderate: wetness, too clayey.	Slight----------	Fair: too clayey, wetness.
EpC---------- Emporia	Severe: wetness, percs slowly.	Severe: seepage, slope, wetness.	Moderate: wetness, slope, too clayey.	Moderate: slope.	Fair: slope, too clayey, wetness.
EuA, EuB---------- Eulonia	Severe: percs slowly, wetness.	Moderate: seepage.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey.
FoB---------- Foxworth	Moderate: wetness.	Severe: seepage.	Severe: seepage, wetness.	Severe: seepage.	Poor: seepage, too sandy.
GoA---------- Goldsboro	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
Gr*:					
Grifton----------	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: wetness.
Osier----------	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, wetness, seepage.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
Hp---------- Haplaquents	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
LaB---------- Lakeland	Slight----------	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
Le---------- Leon	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
Ly---------- Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Na---------- Nakina	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: wetness.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
NeA---------- Nansemond	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Fair: too sandy, wetness.
NoA, NoB---------- Noboco	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
NrA, NrB---------- Norfolk	Moderate: wetness, percs slowly.	Moderate: seepage, wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey.
OcA---------- Ocilla	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Fair: wetness.
Oe---------- Osier	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
Oy*:					
Osier----------	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, wetness, seepage.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
Pickney----------	Severe: flooding, ponding, poor filter.	Severe: flooding, ponding, seepage.	Severe: flooding, seepage, ponding.	Severe: flooding, ponding, seepage.	Poor: too sandy, seepage, ponding.
Pa---------- Pantego	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Poor: ponding.
Pe---------- Pelham	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness, seepage.	Poor: wetness.
Pk---------- Pickney	Severe: ponding, poor filter.	Severe: ponding, seepage.	Severe: seepage, ponding.	Severe: ponding, seepage.	Poor: seepage, too sandy, ponding.
Pm---------- Plummer	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness.
Pu---------- Pungo	Severe: subsides, ponding, percs slowly.	Severe: excess humus, ponding.	Severe: seepage, ponding, excess humus.	Severe: ponding.	Poor: ponding, excess humus, too acid.
Ra---------- Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Re---------- Rembert	Severe: ponding, percs slowly.	Severe: seepage, ponding.	Severe: seepage, ponding.	Severe: ponding.	Poor: ponding.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ru---------- Rutlege	Severe: ponding, poor filter.	Severe: seepage, ponding.	Severe: seepage, ponding, too sandy.	Severe: seepage, ponding.	Poor: too sandy, ponding.
Se---------- Seagate	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Fair: wetness, too clayey.
Tc*:					
Tawcaw----------	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too clayey, hard to pack, wetness.
Chastain----------	Severe: flooding, wetness, percs slowly.	Severe: flooding, seepage.	Severe: flooding, wetness, seepage.	Severe: flooding, wetness.	Poor: wetness, too clayey, hard to pack.
UcB---------- Uchee	Severe: wetness, percs slowly.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy.
Wa---------- Wahee	Severe: wetness, percs slowly.	Slight----------	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--CONSTRUCTION MATERIALS

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "good," "fair," and other terms. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
AgB Alaga	Good	Probable	Improbable: too sandy.	Poor: too sandy.
ApB Alpin	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Ar Argent	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
AtA, AtB Autryville	Good	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
BaA, BaB, BaC Blanton	Good	Probable	Improbable: too sandy.	Poor: too sandy.
BnA Blanton	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
BoA, BoB Bonneau	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
Br Brookman	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
By Byars	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
CaA, CaB Cahaba	Good	Probable	Improbable: too sandy.	Fair: too clayey.
Ce Centenary	Good	Probable	Improbable: too sandy.	Poor: too sandy.
ChA Chipley	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
Cx Coxville	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Ec Echaw	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
Eo Elloree	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
EpB Emporia	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones.
EpC Emporia	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
EuA, EuB: Eulonia	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
FoB: Foxworth	Good	Probable	Improbable: too sandy.	Poor: too sandy.
GoA: Goldsboro	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Gr*:				
Grifton	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Osier	Poor: wetness.	Probable	Improbable: too sandy.	Poor: wetness.
Hp: Haplaquents	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
LaB: Lakeland	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Le: Leon	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
Ly: Lynchburg	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Na: Nakina	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
NeA: Nansemond	Fair: wetness.	Probable	Improbable: too sandy.	Good.
NoA, NoB: Noboco	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
NrA, NrB: Norfolk	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
OcA: Ocilla	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
Oe: Osier	Poor: wetness.	Probable	Improbable: too sandy.	Poor: wetness.
Oy*:				
Osier	Poor: wetness.	Probable	Improbable: too sandy.	Poor: wetness.
Pickney	Poor: wetness.	Probable	Improbable: too sandy.	Poor: wetness.
Pa: Pantego	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Pe: Pelham	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Pk---------- Pickney	Poor: wetness.	Probable----------	Improbable: too sandy.	Poor: wetness.
Pm---------- Plummer	Poor: wetness.	Probable----------	Improbable: too sandy.	Poor: wetness.
Pu---------- Pungo	Poor: wetness.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness, too acid.
Ra---------- Rains	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Re---------- Rembert	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Ru---------- Rutlege	Poor: wetness.	Improbable: excess fines.	Improbable: too sandy.	Poor: wetness.
Se---------- Seagate	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
Tc*:				
Tawcaw----------	Fair: low strength, shrink-swell, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Chastain----------	Poor: wetness.	Probable----------	Improbable: excess fines.	Poor: too clayey, wetness.
UcB---------- Uchee	Good----------	Improbable: thin layer.	Improbable: excess fines.	Poor: too sandy.
Wa---------- Wahee	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--WATER MANAGEMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Grassed waterways
AgB Alaga	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Slope, droughty, fast intake.	Droughty, rooting depth.
ApB Alpin	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Droughty.
Ar Argent	Slight	Severe: ponding.	Severe: slow refill.	Ponding, percs slowly.	Ponding, soil blowing, percs slowly.	Wetness, percs slowly.
AtA Autryville	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
AtB Autryville	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Slope, droughty, fast intake.	Droughty.
BaA Blanton	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Droughty.
BaB Blanton	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Droughty.
BaC Blanton	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Slope, droughty.
BnA Blanton	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Cutbanks cave	Wetness, droughty.	Droughty.
BoA Bonneau	Severe: seepage.	Severe: thin layer.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Droughty.
BoB Bonneau	Severe: seepage.	Severe: thin layer.	Severe: cutbanks cave.	Deep to water	Slope, droughty, fast intake.	Droughty.
Br Brookman	Moderate: seepage.	Severe: hard to pack, ponding.	Severe: slow refill.	Ponding	Ponding, percs slowly.	Wetness.
By Byars	Slight	Severe: hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.
CaA Cahaba	Severe: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Fast intake	Favorable.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Grassed waterways
CaB: Cahaba	Severe: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Fast intake, slope.	Favorable.
Ce: Centenary	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Droughty.
ChA: Chipley	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty.	Droughty.
Cx: Coxville	Slight	Severe: wetness.	Severe: slow refill.	Favorable	Wetness, soil blowing.	Wetness.
Ec: Echaw	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Cutbanks cave	Droughty, fast intake.	Droughty.
Eo: Elloree	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding	Wetness, droughty, fast intake.	Wetness, droughty.
EpB: Emporia	Moderate: seepage, slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Fast intake, soil blowing, slope.	Droughty, percs slowly.
EpC: Emporia	Severe: slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Fast intake, soil blowing, slope.	Slope, droughty, percs slowly.
EuA: Eulonia	Moderate: seepage.	Severe: wetness.	Severe: slow refill.	Favorable	Wetness	Favorable.
EuB: Eulonia	Moderate: seepage, slope.	Severe: wetness.	Severe: slow refill.	Slope	Slope, wetness.	Favorable.
FoB: Foxworth	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Deep to water	Slope, droughty, fast intake.	Droughty.
GoA: Goldsboro	Slight	Slight	Moderate: deep to water, slow refill.	Favorable	Wetness, droughty, fast intake.	Droughty, rooting depth.
Gr*:						
Grifton	Severe: seepage.	Severe: wetness.	Severe: cutbanks cave.	Flooding	Wetness, flooding.	Wetness.
Osier	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, droughty.
Hp: Haplaquents	Slight	Severe: wetness, piping.	Severe: slow refill.	Percs slowly	Wetness, percs slowly.	Wetness, percs slowly.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Grassed waterways
LaB: Lakeland	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Droughty.
Le: Leon	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty.	Wetness, droughty.
Ly: Lynchburg	Slight	Slight	Moderate: slow refill.	Favorable	Wetness, fast intake, soil blowing.	Wetness.
Na: Nakina	Severe: seepage.	Severe: wetness.	Moderate: slow refill.	Flooding	Wetness, soil blowing, flooding.	Wetness.
NeA: Nansemond	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty.	Droughty.
NoA: Noboco	Slight	Slight	Severe: cutbanks cave.	Favorable	Wetness, fast intake.	Rooting depth.
NoB: Noboco	Moderate: slope.	Slight	Severe: cutbanks cave.	Slope	Slope, wetness, fast intake.	Rooting depth.
NrA: Norfolk	Slight	Slight	Moderate: deep to water, slow refill.	Deep to water	Fast intake, soil blowing.	Favorable.
NrB: Norfolk	Moderate: slope.	Slight	Moderate: deep to water, slow refill.	Deep to water	Slope, fast intake.	Favorable.
OcA: Ocilla	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Favorable	Wetness, droughty, fast intake.	Droughty.
Oe: Osier	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
Oy*:						
Osier	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, droughty.
Pickney	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Cutbanks cave, flooding, ponding.	Ponding, droughty, fast intake.	Wetness, droughty.
Pa: Pantego	Moderate: seepage.	Severe: ponding.	Severe: slow refill.	Ponding	Ponding	Wetness.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Grassed waterways
Pe: Pelham	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Favorable	Fast intake, wetness.	Wetness.
Pk: Pickney	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Cutbanks cave, ponding.	Droughty, fast intake, ponding.	Wetness, droughty.
Pm: Plummer	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
Pu: Pungo	Slight	Severe: excess humus, ponding.	Severe: slow refill.	Ponding, percs slowly, subsides.	Ponding, soil blowing, percs slowly.	Wetness, percs slowly.
Ra: Rains	Slight	Slight	Moderate: slow refill.	Favorable	Wetness	Wetness.
Re: Rembert	Severe: seepage.	Severe: ponding.	Severe: slow refill.	Ponding, percs slowly.	Ponding, soil blowing, percs slowly.	Wetness, percs slowly.
Ru: Rutlege	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty.	Wetness, droughty.
Se: Seagate	Severe: seepage.	Severe: wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, fast intake, droughty.	Droughty.
Tc*:						
Tawcaw	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Erodes easily, percs slowly.
Chastain	Severe: seepage.	Severe: hard to pack, wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Wetness, erodes easily, percs slowly.
UcB: Uchee	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Droughty.
Wa: Wahee	Slight	Severe: wetness, hard to pack.	Severe: slow refill.	Percs slowly	Wetness, soil blowing.	Wetness, percs slowly.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments >3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
AgB---------- Alaga	0-10	Sand----------	SM, SP-SM	A-2, A-1-b, A-3	0	100	90-100	40-70	5-25	---	NP
	10-77	Loamy sand, loamy fine sand, coarse sand, loamy coarse sand.	SM, SW-SM, SP-SM, SP	A-2	0	100	90-100	40-85	5-25	---	NP
ApB---------- Alpin	0-7	Sand----------	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	7-60	Fine sand, sand	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	60-80	Fine sand, sand, coarse sand.	SP-SM, SM	A-2-4	0	95-100	90-100	40-100	5-20	---	NP
Ar---------- Argent	0-5	Fine sandy loam	SM, SC, SC-SM	A-2, A-4	0	100	98-100	90-100	30-50	<30	NP-10
	5-65	Clay, sandy clay, silty clay, clay loam.	CL, CH	A-6, A-7	0	100	98-100	90-100	55-98	30-60	11-40
AtA, AtB--------- Autryville	0-32	Sand----------	SP-SM, SM	A-2, A-3	0	100	100	50-100	5-20	---	NP
	32-47	Sandy loam, sandy clay loam, fine sandy loam.	SM	A-2	0	100	100	50-100	15-30	<25	NP-3
	47-54	Sand, fine sand, loamy sand, loamy fine sand.	SP-SM, SM	A-2, A-3	0	100	100	50-100	5-20	---	NP
	54-70	Sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4	0	100	100	60-100	20-49	<30	NP-10
BaA, BaB, BaC---- Blanton	0-42	Fine sand--------	SP-SM, SM	A-3, A-2-4	0	100	90-100	65-100	5-20	---	NP
	42-70	Sandy clay loam, sandy loam, sandy clay.	SC, SC-SM, SM	A-4, A-2-4, A-2-6, A-6	0	100	95-100	69-100	25-50	12-45	3-22
BnA---------- Blanton	0-50	Fine sand--------	SP-SM, SM	A-3, A-2	0	96-100	90-100	65-100	5-20	---	NP
	50-56	Sandy loam, fine sandy loam, loamy sand.	SM	A-2	0	96-100	95-100	65-100	13-30	<25	NP-3
	56-70	Sandy clay loam, sandy loam.	SC, SC-SM, SM	A-4, A-2, A-6, A-7	0	96-100	95-100	65-100	25-50	14-45	3-22
BoA, BoB--------- Bonneau	0-25	Fine sand--------	SM, SP-SM	A-2, A-3	0	100	100	60-95	8-20	---	NP
	25-46	Sandy loam, sandy clay loam.	SC, SC-SM	A-2, A-6, A-4	0	100	100	60-100	30-50	21-40	4-21
	46-70	Sandy loam, sandy clay loam, sandy clay.	CL, SC, SC-SM, CL-ML	A-4, A-6, A-2	0	100	100	60-95	25-60	20-40	4-18
Br---------- Brookman	0-11	Clay loam--------	CL, ML, CL-ML	A-6, A-4	0	100	95-100	75-100	51-81	25-40	3-19
	11-62	Sandy clay, clay, clay loam.	CH, CL	A-7, A-6	0	100	98-100	85-100	55-91	37-65	18-41
	62-80	Sand, loamy sand	SM, SP-SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments >3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
By---------- Byars	0-13	Loam----------	CL, ML	A-6, A-7-6, A-4	0	98-100	98-100	90-100	70-95	32-50	11-23
	13-60	Clay, clay loam	CL, CH	A-7-5, A-7-6, A-6	0	98-100	98-100	90-100	60-95	39-75	17-42
CaA, CaB--------- Cahaba	0-8	Loamy sand-------	SM	A-2	0-5	95-100	95-100	50-75	15-35	---	NP
	8-54	Sandy clay loam, clay loam.	SC, CL	A-4, A-6	0	90-100	80-100	75-90	40-75	22-35	8-15
	54-75	Sand, loamy sand, sandy loam.	SM, SP-SM	A-2-4	0	95-100	90-100	60-85	10-35	---	NP
Ce---------- Centenary	0-10	Sand----------	SP, SP-SM	A-3	0	100	100	60-100	4-10	---	NP
	10-52	Sand, fine sand, loamy sand.	SP-SM, SP, SM	A-3, A-2-4	0	100	100	60-100	4-20	---	NP
	52-77	Sand, fine sand, loamy sand.	SP, SP-SM, SM	A-3, A-2-4	0	100	100	60-100	3-20	---	NP
ChA---------- Chipley	0-10	Fine sand--------	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
	10-80	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
Cx---------- Coxville	0-10	Loam----------	SM, ML, CL-ML, CL	A-4, A-6, A-7	0	100	100	85-97	46-75	20-46	3-15
	10-75	Clay loam, sandy clay, clay.	CL, CH	A-6, A-7	0	100	100	85-98	50-85	30-55	12-35
Ec---------- Echaw	0-9	Sand----------	SP, SP-SM	A-3, A-2-4	0	100	100	50-80	4-10	---	NP
	9-41	Loamy sand, fine sand, loamy fine sand.	SM, SP-SM	A-2, A-3	0	100	100	50-90	5-40	---	NP
	41-76	Fine sand, loamy sand, sand, loamy fine sand.	SM, SP-SM	A-2, A-3	0	100	100	50-90	5-40	---	NP
Eo---------- Elloree	0-6	Loamy fine sand	SM	A-2	0	100	98-100	70-100	15-35	<25	NP-4
	6-31	Sand, fine sand, loamy sand, loamy fine sand.	SP-SM, SM	A-2, A-3	0	100	98-100	65-100	9-35	<25	NP-4
	31-45	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC-SM, SC	A-2	0	100	98-100	60-100	15-35	<30	NP-12
	45-65	Loamy sand, sandy loam.	SM, SC-SM	A-2	0	100	98-100	60-90	15-40	<30	NP-12
EpB, EpC--------- Emporia	0-11	Loamy sand-------	SM, SC-SM	A-2, A-1, A-4	0-3	90-100	80-100	40-85	15-40	<18	NP-7
	11-31	Sandy clay loam, sandy loam, clay loam.	SC, CL	A-2, A-4, A-6, A-7	0-2	90-100	80-100	45-95	25-70	20-50	8-30
	31-45	Sandy clay loam, clay loam.	SC, CL	A-2, A-4, A-6, A-7	0-2	90-100	80-100	45-95	30-80	25-55	8-30
	45-60	Stratified sandy loam to clay.	SM, SC, ML, CL	A-1, A-2, A-4, A-6	0-5	70-100	55-100	30-90	20-60	<40	NP-25
EuA, EuB--------- Eulonia	0-14	Fine sandy loam	SM, SC-SM	A-2, A-4, A-5	0	100	95-100	60-98	30-50	25-62	NP-10
	14-45	Sandy clay, clay, clay loam.	SC, CL	A-6, A-7, A-4	0	100	95-100	70-99	45-80	25-45	8-37
	45-80	Sandy clay loam, clay loam.	SC, SC-SM	A-2, A-4, A-6	0	100	90-100	60-100	25-70	20-35	5-25

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments >3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
FoB---------- Foxworth	0-8	Fine sand--------	SP-SM	A-3, A-2-4	0	100	100	60-100	5-12	---	NP
	8-54	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	60-100	5-12	---	NP
	54-85	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	50-100	1-12	---	NP
GoA---------- Goldsboro	0-16	Loamy sand-------	SM	A-2	0	95-100	95-100	50-95	13-30	<20	NP
	16-35	Sandy clay loam, sandy loam.	SC-SM, SC, CL-ML, CL	A-2, A-4, A-6	0	98-100	95-100	60-100	25-55	16-37	4-18
	35-75	Sandy loam, sandy clay loam, clay loam, clay.	SC, CL, CL-ML, CH	A-4, A-6, A-7-6	0	95-100	90-100	65-95	25-70	20-55	6-32
Gr*:											
Grifton---------	0-13	Fine sandy loam	SM	A-2, A-4	0	100	95-100	60-100	20-45	<20	NP
	13-48	Sandy loam, sandy clay loam.	SC, CL	A-4, A-6, A-2-4, A-2-6	0	98-100	95-100	60-100	31-60	20-35	8-15
	48-65	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	100	95-100	60-95	12-30	<20	NP
Osier----------	0-6	Loamy fine sand	SM	A-2	0	100	98-100	70-90	13-25	---	NP
	6-35	Sand, loamy sand, coarse sand.	SP-SM, SM	A-2, A-3	0	100	90-100	40-96	2-20	---	NP
	35-70	Coarse sand, sand.	SP, SP-SM	A-1, A-3, A-2-4	0	100	90-100	40-60	2-10	---	NP
Hp---------- Haplaquents	0-60	Sandy clay loam	SC, CL, SC-SM, CL-ML	A-4, A-6	0	98-100	95-100	71-96	38-58	22-40	4-19
LaB---------- Lakeland	0-7	Sand----------	SP-SM	A-3, A-2-4	0	90-100	90-100	60-100	5-12	---	NP
	7-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	90-100	90-100	50-100	1-12	---	NP
Le---------- Leon	0-4	Sand----------	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
	4-12	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
	12-50	Sand, loamy fine sand.	SM, SP-SM, SP	A-3, A-2-4	0	100	100	80-100	3-20	---	NP
	50-70	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
Ly---------- Lynchburg	0-16	Loamy fine sand	SM, SP-SM	A-2, A-4	0	92-100	90-100	60-100	12-40	<25	NP-4
	16-75	Sandy clay loam, sandy loam.	SC-SM, SC, CL, CL-ML	A-2, A-4, A-6	0	92-100	90-100	70-100	25-55	15-35	4-18
Na---------- Nakina	0-16	Fine sandy loam	SM, ML	A-2-4, A-4	0	100	100	85-100	20-60	<30	NP-7
	16-60	Sandy clay loam, fine sandy loam.	SC	A-4, A-6, A-2	0	100	100	90-100	28-45	28-40	9-18
NeA---------- Nansemond	0-15	Loamy sand-------	SM, SC-SM	A-1, A-2, A-4	0	100	95-100	45-95	15-50	<20	NP-7
	15-35	Sandy loam-------	SM, SC-SM, SC	A-2, A-4, A-6	0	100	50-100	45-85	30-50	<25	NP-15
	35-65	Loamy sand, sandy loam.	SM, SC, SC-SM	A-1, A-2, A-4	0	100	50-100	40-95	15-50	<25	NP-10
NoA, NoB--------- Noboco	0-13	Loamy sand-------	SM	A-2	0	95-100	92-100	50-95	13-30	<20	NP
	13-58	Sandy loam, sandy clay loam.	SC-SM, SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	95-100	70-96	30-63	20-38	4-15
	58-75	Sandy clay loam, sandy loam, sandy clay.	SC-SM, SC, CL, CL-ML	A-4, A-6, A-7-6	0	98-100	98-100	70-98	30-72	20-52	4-23

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments >3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
NrA, NrB--------- Norfolk	0-16	Loamy sand-------	SM	A-2	0	95-100	92-100	50-95	13-30	<20	NP
	16-60	Sandy loam, sandy clay loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-63	20-38	4-15
	60-70	Sandy clay loam, sandy loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	100	98-100	70-98	20-65	20-40	4-15
OcA---------- Ocilla	0-27	Fine sand--------	SM, SP-SM	A-2, A-3	0	100	95-100	70-100	8-35	---	NP
	27-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, CL, SC, ML	A-2, A-4, A-6	0	100	95-100	80-100	20-55	20-40	NP-18
Oe---------- Osier	0-6	Loamy sand-------	SP-SM	A-2, A-3	0	100	98-100	60-85	5-12	---	NP
	6-35	Sand, loamy sand, coarse sand.	SP-SM, SM	A-2, A-3	0	100	90-100	40-96	2-20	---	NP
	35-70	Coarse sand, sand	SP, SP-SM	A-1, A-3, A-2-4	0	100	90-100	40-60	2-10	---	NP
Oy*:											
Osier----------	0-6	Loamy sand-------	SP-SM	A-2, A-3	0	100	98-100	60-85	5-12	---	NP
	6-35	Sand, loamy sand, coarse sand.	SP-SM, SM	A-2, A-3	0	100	90-100	40-96	2-20	---	NP
	35-70	Coarse sand, sand	SP, SP-SM	A-1, A-3, A-2-4	0	100	90-100	40-60	2-10	---	NP
Pickney---------	0-29	Loamy fine sand	SM, SP-SM	A-2	0	100	100	50-90	10-25	---	NP
	29-75	Loamy fine sand, loamy sand, fine sand, sand, coarse sand.	SP, SP-SM, SM	A-2, A-3, A-1	0	100	90-100	40-90	3-25	---	NP
Pa---------- Pantego	0-24	Loam----------	SM, ML	A-2, A-4	0	100	95-100	65-100	25-75	<35	NP-10
	24-62	Sandy clay loam, clay loam.	SC, CL, ML	A-4, A-6	0	100	95-100	70-100	36-80	20-40	4-16
	62-70	Sandy clay, sandy clay loam, clay loam.	SC, CL, CL-ML, SC-SM	A-6, A-7	0	100	95-100	80-100	36-80	25-49	11-24
Pe---------- Pelham	0-34	Loamy sand-------	SM	A-2	0	100	95-100	75-100	15-30	---	NP
	34-65	Sandy clay loam, sandy loam, fine sandy loam.	SM, SC, SC-SM	A-2, A-4, A-6	0	100	95-100	65-100	27-50	15-30	2-12
Pk---------- Pickney	0-29	Loamy fine sand	SM, SP-SM	A-2	0	100	100	50-90	15-25	---	NP
	29-75	Loamy fine sand, loamy sand, fine sand, sand, coarse sand.	SP, SP-SM, SM	A-2, A-3, A-1	0	100	90-100	40-90	3-25	---	NP
Pm---------- Plummer	0-65	Loamy fine sand	SM	A-2-4	0	100	100	75-96	13-26	---	NP
	65-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SC-SM	A-2-4, A-4	0	100	97-100	76-96	20-48	<30	NP-10
Pu---------- Pungo	0-21	Muck----------	PT	---	---	---	---	---	---	---	---
	21-59	Muck----------	PT	---	---	---	---	---	---	---	---
	59-65	Clay loam, clay	CL, SC	A-4, A-6	0	100	95-100	85-100	45-95	25-45	10-25

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments >3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
Ra---------- Rains	0-10	Fine sandy loam	SM, ML	A-2, A-4	0	100	95-100	50-85	25-56	<35	NP-10
	10-66	Sandy clay loam, clay loam, sandy loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	55-98	30-70	18-40	4-20
	66-80	Sandy clay loam, clay loam, sandy clay, sandy loam	SC, SC-SM, CL, CL-ML	A-4, A-6, A-7, A-2	0	100	98-100	60-98	30-72	18-45	4-28
Re---------- Rembert	0-7	Sandy loam-------	SM, SC-SM	A-4	0	100	95-100	60-80	36-50	<20	NP-7
	7-33	Clay, sandy clay	CL, CH	A-6, A-7	0	100	98-100	85-98	55-85	35-53	15-30
	33-54	Sandy clay loam, sandy clay.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	67-98	30-60	15-35	4-15
	54-80	Sandy clay loam, sandy loam, loamy sand.	SC, SM, SC-SM	A-2, A-4	0	100	98-100	60-90	20-50	<30	NP-10
Ru---------- Rutlege	0-13	Loamy fine sand	SM, SP-SM	A-2, A-3	0	95-100	95-100	50-80	5-35	<25	NP
	13-65	Sand, loamy sand, loamy fine sand, fine sand.	SP-SM, SP, SM	A-2, A-3	0	95-100	95-100	50-80	2-25	<20	NP
Se---------- Seagate	0-13	Sand----------	SM, SP-SM	A-2, A-3	0	100	100	90-100	5-20	---	NP
	13-19	Fine sand, loamy fine sand, loamy sand, sand.	SM, SP-SM	A-2, A-3	0	100	100	90-100	10-25	---	NP
	19-35	Fine sand, sand, loamy sand.	SM, SP-SM	A-2, A-3	0	100	100	90-100	5-20	---	NP
	35-70	Sandy loam, sandy clay loam.	SM, SC-SM	A-2, A-4	0	100	100	85-100	20-45	<30	NP-7
Tc*:											
Tawcaw----------	0-9	Clay----------	CL, MH, CH, ML	A-7	0	100	100	90-100	75-98	40-75	16-40
	9-70	Silty clay loam, clay loam, silty clay, clay.	CL, CH	A-6, A-7	0	100	100	90-100	51-98	30-65	11-33
Chastain--------	0-2	Clay----------	ML, CL, MH, CH	A-6, A-7	0	100	100	90-100	75-98	35-75	12-40
	2-59	Clay, silty clay	CL, CH, ML, MH	A-6, A-7	0	100	100	95-100	85-98	35-75	12-40
	59-70	Loamy sand, sand, coarse sand.	SP, SM, SP-SM	A-2, A-3	0	90-100	85-100	40-90	4-25	---	NP
UcB---------- Uchee	0-26	Sand----------	SM	A-2, A-1-b	0	90-100	80-100	40-70	15-30	---	NP
	26-33	Sandy loam, sandy clay loam.	SC, SC-SM	A-2, A-4, A-6	0	90-100	80-100	50-80	25-50	20-40	6-20
	33-43	Sandy clay loam, sandy clay.	CH, CL, SC	A-7	0	90-100	80-100	65-90	40-70	41-70	18-38
	43-60	Sandy loam, sandy clay loam, sandy clay.	CH, CL, SC	A-6, A-7, A-2-6	0	85-100	80-100	50-80	30-65	35-65	15-35
	60-75	Sandy loam, loamy sand.	SP-SM, SM, SC-SM	A-2, A-1-b	0	95-100	90-100	40-70	10-35	<25	NP-7

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments >3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
Wa---------- Wahee	0-16	Fine sandy loam	SM, SC-SM	A-2, A-4	0	100	95-100	50-98	30-50	<28	NP-7
	16-53	Clay, silty clay, sandy clay.	CL, CH	A-6, A-7	0	100	100	85-100	51-92	38-81	16-54
	53-70	Coarse sand, sand, loamy sand	SP, SM, SP-SM	A-2, A-3	0	95-100	85-100	40-90	5-25	---	NP

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH					Pct
AgB---------- Alaga	0-10	1-10	1.60-1.75	6.0-20	0.05-0.09	4.5-6.5	Low----------	0.10	5	1	.5-3
	10-77	2-12	1.60-1.75	6.0-20	0.05-0.09	4.5-6.0	Low----------	0.10			
ApB---------- Alpin	0-7	1-10	1.35-1.55	2.0-6.0	0.05-0.10	5.0-6.5	Low----------	0.10	5	1	0-2
	7-60	1-7	1.40-1.55	6.0-20	0.03-0.09	5.0-6.5	Low----------	0.10			
	60-80	5-8	1.45-1.65	2.0-6.0	0.06-0.09	5.0-6.5	Low----------	0.10			
Ar---------- Argent	0-5	5-20	1.40-1.60	2.0-6.0	0.10-0.15	4.5-6.0	Low----------	0.24	5	3	1-3
	5-65	35-60	1.30-1.50	0.06-0.2	0.14-0.18	5.6-7.3	Moderate-----	0.32			
AtA, AtB--------- Autryville	0-32	2-10	1.60-1.70	>6.0	0.04-0.09	4.5-6.5	Low----------	0.10	5	2	.5-1
	32-47	10-25	1.40-1.60	2.0-6.0	0.08-0.13	4.5-6.0	Low----------	0.10			
	47-54	2-8	1.60-1.70	>6.0	0.03-0.08	4.5-6.0	Low----------	0.10			
	54-70	10-35	1.40-1.60	0.6-2.0	0.10-0.15	4.5-6.0	Low----------	0.17			
BaA, BaB, BaC---- Blanton	0-42	1-7	1.30-1.60	6.0-20	0.03-0.07	4.5-6.0	Low----------	0.10	5	1	.5-1
	42-70	12-40	1.60-1.70	0.2-2.0	0.10-0.15	4.5-6.0	Low----------	0.20			
BnA---------- Blanton	0-50	1-7	1.40-1.65	6.0-20	0.03-0.07	4.5-6.0	Low----------	0.10	5	1	.5-2
	50-56	10-18	1.50-1.65	2.0-6.0	0.10-0.15	4.5-6.0	Low----------	0.15			
	56-70	12-30	1.60-1.70	0.6-2.0	0.10-0.15	4.5-6.0	Low----------	0.20			
BoA, BoB--------- Bonneau	0-25	2-8	1.30-1.70	6.0-20	0.04-0.08	4.5-6.0	Low----------	0.10	5	1	.5-2
	25-46	13-35	1.40-1.60	0.6-2.0	0.10-0.15	4.5-6.0	Low----------	0.20			
	46-70	15-40	1.40-1.60	0.6-2.0	0.10-0.16	4.5-6.0	Low----------	0.20			
Br---------- Brookman	0-11	27-40	1.20-1.45	0.6-2.0	0.15-0.20	4.5-6.5	Low----------	0.24	4	5	3-10
	11-62	35-55	1.30-1.50	0.6-2.0	0.18-0.22	4.5-6.5	Moderate-----	0.28			
	62-80	2-10	1.40-1.60	>6.0	0.04-0.09	4.5-7.3	Low----------	0.10			
By---------- Byars	0-13	7-27	1.20-1.50	0.6-2.0	0.15-0.20	4.5-5.5	Low----------	0.28	5	6	2-9
	13-60	35-60	1.30-1.60	0.06-0.2	0.14-0.18	3.6-5.5	Moderate-----	0.32			
CaA, CaB--------- Cahaba	0-8	2-12	1.40-1.70	6.0-20	0.05-0.10	4.5-6.0	Low----------	0.15	5	2	.5-2
	8-54	18-35	1.35-1.60	0.6-2.0	0.12-0.20	4.5-6.0	Low----------	0.28			
	54-75	4-20	1.40-1.70	2.0-20	0.05-0.10	4.5-6.0	Low----------	0.24			
Ce---------- Centenary	0-10	1-8	1.40-1.60	6.0-20	0.03-0.08	4.5-6.5	Low----------	0.10	5	1	<1
	10-52	1-8	1.40-1.60	6.0-20	0.03-0.05	4.5-6.0	Low----------	0.10			
	52-77	2-10	1.50-1.70	2.0-6.0	0.03-0.10	4.5-6.0	Low----------	0.10			
ChA---------- Chipley	0-10	1-5	1.35-1.45	6.0-20	0.05-0.10	5.1-6.5	Low----------	0.10	5	1	2-5
	10-80	1-7	1.45-1.60	6.0-20	0.03-0.08	5.1-6.0	Low----------	0.10			
Cx---------- Coxville	0-10	10-27	1.45-1.65	0.6-2.0	0.12-0.17	4.5-5.5	Low----------	0.24	5	3	2-4
	10-75	35-60	1.25-1.45	0.2-0.6	0.14-0.18	4.5-5.5	Moderate-----	0.32			
Ec---------- Echaw	0-9	1-8	1.40-1.60	2.0-20	0.03-0.08	4.5-6.0	Low----------	0.10	5	1	<1
	9-41	2-10	1.40-1.60	6.0-20	0.05-0.10	4.5-6.0	Low----------	0.10			
	41-76	2-10	1.50-1.70	2.0-20	0.03-0.08	4.5-6.0	Low----------	0.10			
Eo---------- Elloree	0-6	2-8	1.40-1.60	6.0-20	0.06-0.11	4.5-6.0	Low----------	0.15	5	2	2-8
	6-31	1-6	1.50-1.70	6.0-20	0.02-0.10	5.1-7.3	Low----------	0.10			
	31-45	9-25	1.30-1.60	2.0-6.0	0.10-0.15	5.6-7.8	Low----------	0.15			
	45-65	5-20	1.30-1.50	2.0-6.0	0.10-0.17	5.6-7.8	Low----------	0.17			

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH					Pct
EpB, EpC--------- Emporia	0-11	5-10	1.30-1.40	6.0-20	0.05-0.10	4.5-6.0	Low----------	0.28	4	2	.5-2
	11-31	18-35	1.35-1.45	0.2-2.0	0.10-0.18	4.5-6.0	Low----------	0.28			
	31-45	21-40	1.45-1.60	0.06-0.6	0.10-0.16	4.5-6.0	Moderate-----	0.20			
	45-60	5-40	1.45-1.60	0.06-2.0	0.08-0.18	4.5-6.0	Moderate-----	0.20			
EuA, EuB--------- Eulonia	0-14	5-20	1.40-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low----------	0.24	5	3	.5-2
	14-45	45-65	1.50-1.70	0.2-0.6	0.12-0.16	4.5-6.0	Low----------	0.24			
	45-80	15-35	1.50-1.70	0.6-2.0	0.10-0.14	4.5-6.0	Low----------	0.20			
FoB---------- Foxworth	0-8	1-8	1.25-1.45	>6.0	0.05-0.10	4.5-6.0	Low----------	0.10	5	1	.5-2
	8-54	1-8	1.40-1.55	>6.0	0.05-0.10	4.5-6.0	Low----------	0.10			
	54-85	1-6	1.45-1.65	>6.0	0.02-0.08	4.5-6.0	Low----------	0.10			
GoA---------- Goldsboro	0-16	2-8	1.55-1.75	6.0-20	0.06-0.11	3.6-7.3	Low----------	0.17	5	2	.5-2
	16-35	18-30	1.30-1.50	0.6-2.0	0.11-0.17	3.6-5.5	Low----------	0.24			
	35-75	20-34	1.30-1.40	0.6-2.0	0.11-0.20	3.6-5.5	Low----------	0.24			
Gr*:											
Grifton---------	0-13	7-18	1.45-1.65	2.0-6.0	0.10-0.14	4.5-7.3	Low----------	0.20	5	3	2-4
	13-48	18-35	1.35-1.45	0.6-2.0	0.12-0.17	5.6-7.3	Low----------	0.24			
	48-65	2-18	1.45-1.70	2.0-20	0.07-0.14	5.6-7.3	Low----------	0.20			
Osier----------	0-6	10-15	1.35-1.60	6.0-20	0.10-0.15	5.6-7.3	Low----------	0.15	5	3	2-5
	6-35	1-10	1.40-1.60	6.0-20	0.03-0.10	5.6-7.3	Low----------	0.10			
	35-70	2-5	1.40-1.60	>20	0.02-0.05	5.6-7.3	Low----------	0.05			
Hp---------- Haplaquents	0-60	20-35	1.30-1.65	0.06-0.6	0.10-0.15	4.5-7.3	Low----------	0.20	5	5	0-1
LaB---------- Lakeland	0-7	2-8	1.35-1.65	6.0-20	0.05-0.09	4.5-6.0	Low----------	0.10	5	1	.5-1
	7-80	1-6	1.50-1.60	6.0-20	0.02-0.08	4.5-6.0	Low----------	0.10			
Le---------- Leon	0-4	1-5	1.30-1.45	6.0-20	0.05-0.15	3.6-5.5	Low----------	0.10	5	1	.5-4
	4-12	<3	1.40-1.60	6.0-20	0.02-0.05	3.6-5.5	Low----------	0.10			
	12-50	2-8	1.25-1.65	0.6-6.0	0.15-0.30	3.6-5.5	Low----------	0.15			
	50-70	1-4	1.50-1.65	2.0-20	0.05-0.10	3.6-5.5	Low----------	0.10			
Ly---------- Lynchburg	0-16	2-10	1.40-1.70	6.0-20	0.07-0.10	3.6-6.0	Low----------	0.15	5	2	.5-5
	16-75	18-35	1.30-1.50	0.6-2.0	0.12-0.16	3.6-5.5	Low----------	0.20			
Na---------- Nakina	0-16	10-15	1.40-1.60	2.0-6.0	0.15-0.20	4.5-6.5	Low----------	0.20	5	3	4-10
	16-60	18-35	1.60-1.70	0.6-6.0	0.12-0.17	5.1-8.4	Low----------	0.28			
NeA---------- Nansemond	0-15	4-10	1.20-1.45	2.0-20	0.05-0.10	4.5-6.0	Low----------	0.15	3	2	.5-1
	15-35	10-18	1.25-1.45	2.0-6.0	0.10-0.16	4.5-6.0	Low----------	0.17			
	35-65	4-12	1.30-1.55	2.0-6.0	0.06-0.11	4.5-6.0	Low----------	0.15			
NoA, NoB--------- Noboco	0-13	2-8	1.55-1.80	6.0-20	0.08-0.11	3.6-6.5	Low----------	0.10	5	2	.5-2
	13-58	18-35	1.45-1.75	0.6-2.0	0.11-0.14	3.6-5.5	Low----------	0.24			
	58-75	18-43	1.45-1.70	0.6-2.0	0.06-0.14	3.6-5.5	Low----------	0.24			
NrA, NrB--------- Norfolk	0-16	2-8	1.55-1.70	6.0-20	0.06-0.11	3.6-6.0	Low----------	0.17	5	2	.5-2
	16-60	18-35	1.30-1.65	0.6-2.0	0.10-0.18	3.6-5.5	Low----------	0.24			
	60-70	18-35	1.30-1.65	0.6-2.0	0.10-0.18	3.6-5.5	Low----------	0.24			
OcA---------- Ocilla	0-27	3-10	1.45-1.65	2.0-20	0.05-0.07	4.5-5.5	Low----------	0.10	5	2	1-2
	27-80	15-35	1.55-1.70	0.6-2.0	0.09-0.12	4.5-5.5	Low----------	0.24			

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH					Pct
Oe---------- Osier	0-6	1-10	1.35-1.60	6.0-20	0.03-0.10	5.6-7.3	Low----------	0.10	5	2	2-5
	6-35	1-10	1.40-1.60	6.0-20	0.03-0.10	5.6-7.3	Low----------	0.10			
	35-70	2-5	1.40-1.60	>20	0.02-0.05	5.6-7.3	Low----------	0.05			
Oy*:											
Osier----------	0-6	1-10	1.35-1.60	6.0-20	0.03-0.10	5.6-7.3	Low----------	0.10	5	2	2-5
	6-35	1-10	1.40-1.60	6.0-20	0.03-0.10	5.6-7.3	Low----------	0.10			
	35-70	2-5	1.40-1.60	>20	0.02-0.05	5.6-7.3	Low----------	0.05			
Pickney---------	0-29	2-10	1.20-1.40	6.0-20	0.06-0.10	4.5-5.5	Low----------	0.10	5	2	3-15
	29-75	1-10	1.40-1.60	6.0-20	0.03-0.11	5.1-6.0	Low----------	0.10			
Pa---------- Pantego	0-24	7-15	1.40-1.60	2.0-6.0	0.12-0.20	4.5-5.5	Low----------	0.20	5	8	4-10
	24-62	20-35	1.30-1.50	0.6-2.0	0.12-0.20	4.5-5.5	Low----------	0.28			
	62-70	20-40	1.30-1.60	0.2-0.6	0.15-0.20	4.5-5.5	Low----------	0.28			
Pe---------- Pelham	0-34	5-10	1.50-1.70	6.0-20	0.05-0.08	4.5-5.5	Low----------	0.10	5	2	1-2
	34-65	15-30	1.30-1.60	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24			
Pk---------- Pickney	0-29	2-10	1.20-1.40	6.0-20	0.10-0.20	4.5-5.5	Low----------	0.10	5	2	3-15
	29-75	1-10	1.40-1.60	6.0-20	0.03-0.11	5.1-6.0	Low----------	0.10			
Pm---------- Plummer	0-65	1-10	1.35-1.65	2.0-20	0.03-0.10	3.6-5.5	Low----------	0.10	5	2	1-3
	65-80	15-30	1.50-1.70	0.2-2.0	0.07-0.15	3.6-5.5	Low----------	0.15			
Pu---------- Pungo	0-21	---	0.35-0.60	0.6-6.0	0.20-0.26	<4.5	Low----------	----	---	2	40-90
	21-59	---	0.35-0.60	0.06-0.2	0.20-0.26	<4.5	Low----------	----			
	59-65	25-40	1.25-1.35	0.2-6.0	0.12-0.18	3.6-5.5	Moderate-----	0.24			
Ra---------- Rains	0-10	5-20	1.30-1.60	2.0-6.0	0.10-0.14	3.6-5.5	Low----------	0.20	5	3	1-6
	10-66	18-35	1.30-1.60	0.6-2.0	0.11-0.15	3.6-5.5	Low----------	0.24			
	66-80	18-40	1.30-1.50	0.6-2.0	0.10-0.15	3.6-5.5	Low----------	0.28			
Re---------- Rembert	0-7	5-18	1.40-1.60	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	0.20	5	3	1-5
	7-33	35-60	1.20-1.50	0.06-0.2	0.12-0.16	4.5-5.5	Low----------	0.20			
	33-54	22-45	1.30-1.50	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.17			
	54-80	8-25	1.30-1.60	0.6-6.0	0.07-0.12	4.5-5.5	Low----------	0.17			
Ru---------- Rutlege	0-13	2-10	1.30-1.50	6.0-20	0.06-0.10	4.5-5.5	Low----------	0.17	5	---	3-9
	13-65	2-10	1.40-1.60	6.0-20	0.04-0.08	4.5-5.5	Low----------	0.17			
Se---------- Seagate	0-13	0-3	1.60-1.70	6.0-20	0.03-0.06	3.6-6.0	Low----------	0.10	5	1	<.5
	13-19	3-10	1.60-1.70	6.0-20	0.05-0.12	3.6-6.0	Low----------	0.15			
	19-35	1-5	1.60-1.70	2.0-6.0	0.03-0.06	3.6-6.0	Low----------	0.10			
	35-70	10-35	1.40-1.50	0.6-2.0	0.12-0.20	3.6-6.0	Low----------	0.28			
Tc*:											
Tawcaw----------	0-9	40-60	1.30-1.60	0.06-0.2	0.12-0.18	5.1-6.5	Moderate-----	0.32	5	5	1-5
	9-70	35-70	1.30-1.60	0.06-0.2	0.12-0.16	5.1-6.5	Moderate-----	0.37			
Chastain--------	0-2	40-50	1.20-1.40	0.06-0.2	0.12-0.16	5.6-7.8	Moderate-----	0.28	5	4	1-6
	2-59	40-60	1.30-1.50	0.06-0.2	0.12-0.16	5.6-7.8	Moderate-----	0.37			
	59-70	2-10	1.50-1.70	6.0-20	0.03-0.06	5.6-7.8	Low----------	0.10			
UcB---------- Uchee	0-26	3-10	1.30-1.70	6.0-20	0.05-0.10	4.5-6.5	Low----------	0.10	5	2	.2-3
	26-33	8-30	1.40-1.60	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24			
	33-43	25-50	1.40-1.60	0.2-0.6	0.10-0.16	4.5-5.5	Moderate-----	0.28			
	43-60	15-40	1.40-1.60	0.2-2.0	0.10-0.16	4.5-5.5	Moderate-----	0.28			
	60-75	5-15	1.40-1.60	0.6-6.0	0.06-0.12	4.5-5.5	Low----------	0.24			

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH					Pct
Wa---------- Wahee	0-16	5-20	1.30-1.60	0.6-2.0	0.10-0.15	4.5-6.0	Low----------	0.24	5	3	.5-5
	16-53	35-60	1.40-1.60	0.06-0.2	0.12-0.20	4.5-6.0	Moderate-----	0.28			
	53-70	2-10	1.50-1.70	6.0-20	0.03-0.06	4.5-6.0	Low----------	0.10			

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

("Flooding," "water table," and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydrologic group	Flooding			High water table			Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Initial	Total	Uncoated steel	Concrete
					Ft			In	In		
AgB---------- Alaga	A	None-------	---	---	4.0-6.0	Apparent	Jan-Mar	---	---	Low------	Moderate.
ApB---------- Alpin	A	None-------	---	---	>6.0	---	---	---	---	Low------	High.
Ar---------- Argent	D	None-------	---	---	+1-1.0	Apparent	Nov-Apr	---	---	High-----	High.
AtA, AtB------- Autryville	A	None-------	---	---	4.0-6.0	Apparent	Jan-Apr	---	---	Low------	High.
BaA, BaB, BaC-- Blanton	A	None-------	---	---	4.0-6.0	Perched	Jan-Apr	---	---	High-----	High.
BnA---------- Blanton	B	None-------	---	---	2.5-4.0	Perched	Jan-Apr	---	---	High-----	High.
BoA, BoB------- Bonneau	A	None-------	---	---	3.5-5.0	Apparent	Dec-Mar	---	---	Low------	High.
Br---------- Brookman	D	None-------	---	---	+2.-1.0	Apparent	Nov-May	---	---	Moderate	Moderate.
By---------- Byars	D	None-------	---	---	+1-1.0	Apparent	Nov-Apr	---	---	High-----	High.
CaA, CaB------- Cahaba	B	None-------	---	---	>6.0	---	---	---	---	Moderate	Moderate.
Ce---------- Centenary	A	None-------	---	---	3.5-5.0	Apparent	Dec-Mar	---	---	Moderate	High.
ChA---------- Chipley	C	None-------	---	---	2.0-3.0	Apparent	Dec-Apr	---	---	Low------	High.
Cx---------- Coxville	D	None-------	---	---	0-1.0	Apparent	Nov-Apr	---	---	High-----	High.
Ec---------- Echaw	A	None-------	---	---	2.5-5.0	Apparent	Nov-Apr	---	---	Low------	High.
Eo---------- Elloree	D	Occasional	Brief or long.	Dec-Apr	0-1.0	Apparent	Nov-Apr	---	---	High-----	Moderate.
EpB, EpC------- Emporia	C	None-------	---	---	3.0-4.5	Perched	Nov-Apr	---	---	Moderate	High.
EuA, EuB------- Eulonia	C	None-------	---	---	1.5-3.5	Apparent	Dec-May	---	---	Moderate	High.
FoB---------- Foxworth	A	None-------	---	---	4.0-6.0	Apparent	Dec-Apr	---	---	Low------	Moderate.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Initial	Total	Uncoated steel	Concrete
					Ft			In	In		
GoA---------- Goldsboro	B	None-------	---	---	2.0-3.0	Apparent	Dec-Apr	---	---	Moderate	High.
Gr*:											
Grifton-------	D	Frequent---	Brief or long.	Dec-Apr	0.5-1.0	Apparent	Dec-May	---	---	High-----	Low.
Osier---------	A/D	Frequent---	Brief	Dec-Apr	0-1.0	Apparent	Nov-Mar	---	---	High-----	High.
Hp---------- Haplaquents	D	None-------	---	---	0-2.0	Apparent	Nov-Apr	---	---	Moderate	High.
LaB---------- Lakeland	A	None-------	---	---	>6.0	---	---	---	---	Low------	Moderate.
Le---------- Leon	B/D	None-------	---	---	0.5-1.5	Apparent	Nov-Apr	---	---	High-----	High.
Ly---------- Lynchburg	C	None-------	---	---	0.5-1.5	Apparent	Nov-Apr	---	---	High-----	High.
Na---------- Nakina	B/D	Occasional	Brief	Dec-Apr	0-1.0	Apparent	Nov-May	---	---	High-----	Moderate.
NeA---------- Nansemond	C	None-------	---	---	1.5-2.5	Apparent	Dec-Apr	---	---	Moderate	High.
NoA, NoB------- Noboco	B	None-------	---	---	2.5-4.0	Apparent	Dec-Mar	---	---	Moderate	High.
NrA, NrB------- Norfolk	B	None-------	---	---	4.0-6.0	Apparent	Jan-Mar	---	---	Moderate	High.
OcA---------- Ocilla	C	None-------	---	---	1.0-2.5	Apparent	Dec-Apr	---	---	High-----	Moderate.
Oe---------- Osier	A/D	Rare-------	---	---	0-0.5	Apparent	Nov-Mar	---	---	High-----	High.
Oy*:											
Osier---------	A/D	Frequent---	Brief	Dec-Apr	0-1.0	Apparent	Nov-Mar	---	---	High-----	High.
Pickney-------	A/D	Frequent---	Brief or long.	Dec-Apr	+1-1.5	Apparent	Nov-Jun	---	---	High-----	High.
Pa---------- Pantego	D	None-------	---	---	+2-0	Apparent	Nov-Mar	---	---	High-----	High.
Pe---------- Pelham	B/D	None-------	---	---	0-1.0	Apparent	Jan-Apr	---	---	High-----	High.
Pk---------- Pickney	A/D	None-------	---	---	+1-1.0	Apparent	Nov-Apr	---	---	High-----	High.
Pm---------- Plummer	B/D	None-------	---	---	0-1.0	Apparent	Dec-Jul	---	---	Moderate	High.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Initial	Total	Uncoated steel	Concrete
					Ft			In	In		
Pu---------- Pungo	D	None-------	---	---	+1-1.0	Apparent	Nov-May	16-24	36-50	High-----	High.
Ra---------- Rains	B/D	None-------	---	---	0-1.0	Apparent	Nov-Apr	---	---	High-----	High.
Re---------- Rembert	D	None-------	---	---	+1-1.0	Apparent	Nov-Apr	---	---	High-----	High.
Ru---------- Rutlege	B/D	None-------	---	---	+2-1.0	Apparent	Dec-May	---	---	High-----	High.
Se---------- Seagate	A/D	None-------	---	---	1.5-2.5	Apparent	Nov-Apr	---	---	High-----	High.
Tc*:											
Tawcaw--------	C	Frequent---	Long---	Dec-Apr	1.5-2.5	Apparent	Nov-Apr	---	---	High-----	High.
Chastain------	D	Frequent---	Very long.	Dec-Apr	0-1.0	Apparent	Nov-May	---	---	High-----	High.
UcB---------- Uchee	A	None-------	---	---	3.5-5.0	Perched	Jan-Apr	---	---	Low------	High.
Wa---------- Wahee	D	None-------	---	---	0.5-1.5	Apparent	Dec-Mar	---	---	High-----	High.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--PHYSICAL, CHEMICAL, AND MINERALOGICAL PROPERTIES OF SELECTED SOILS

(Dashes indicate that a determination was not made)

Soil name, horizon, and depth in inches	Total: Sand (2-0.05 mm)	Total: Silt (0.05-0.002 mm)	Total: Clay (<0.002 mm)	Exchangeable bases: Ca	Exchangeable bases: Mg	Exchangeable bases: K	Exchangeable bases: Na	Extractable acidity	Cation-exchange capacity: Sum of cations	Cation-exchange capacity: Ammonium acetate	Base saturation	Exchangeable aluminum	Aluminum saturation	ECEC	pH	Clay mineralogy*
	Pct			Meq/100g							Pct	Meq/100g	Pct	Meq/100g		
Cahaba:																
Ap----- 0 to 8	78.5	12.8	8.5	0.88	0.24	0.20	0.16	5.97	7.45	3.70	20.0	0.22	13.0	1.71	5.0	---
Bt----- 8 to 20	64.2	12.4	23.2	1.76	1.03	0.49	0.16	5.17	8.63	4.90	40.0	0.00	0.0	3.45	5.6	---
Bt-----20 to 30	56.8	10.7	32.3	2.43	0.99	0.44	0.18	6.36	10.42	5.50	38.9	0.00	0.0	4.05	5.6	KK-4, VR-2
Bt-----30 to 42	58.3	9.2	32.3	2.68	0.66	0.23	0.18	5.97	9.74	5.70	38.7	0.00	0.0	3.77	5.7	KK-4, VR-2
BC-----42 to 54	65.9	5.5	28.5	2.23	0.66	0.08	0.18	6.76	9.94	5.10	31.9	0.00	0.0	3.17	5.0	---
C------54 to 75	79.7	1.8	18.3	1.38	0.58	0.05	0.18	5.97	8.18	3.50	27.0	0.11	4.8	2.32	5.0	---
Coxville:																
A------ 0 to 5	47.8	37.0	15.2	0.67	0.42	0.03	0.18	22.49	23.79	---	5.5	3.49	72.8	4.78	4.3	---
E------ 5 to 10	39.8	40.7	19.5	0.16	0.11	0.08	0.23	11.62	12.19	---	4.7	2.20	79.4	2.77	4.7	---
Btg1---10 to 25	25.0	34.7	40.3	0.09	0.07	0.02	0.21	25.86	26.24	---	1.5	4.88	92.8	5.27	4.6	KK-4, VR-1
Btg2---25 to 41	27.7	29.0	43.3	0.11	0.12	0.03	0.24	10.87	11.37	---	4.4	4.03	89.0	4.53	4.5	KK-4, VR-1
Btg3---41 to 67	28.9	23.3	47.7	0.07	0.07	0.02	0.18	11.62	11.96	---	2.9	5.36	94.0	5.70	4.4	KK-4, VR-1
Btg4---67 to 75	21.6	26.8	51.6	0.28	0.28	0.04	0.27	10.87	11.60	---	6.3	5.64	88.6	6.37	4.3	---
Eulonia:																
Ap----- 0 to 5	70.3	25.7	4.0	0.90	0.23	0.06	0.07	9.04	10.31	10.10	12.4	0.59	32.0	1.87	4.6	---
E------ 5 to 14	68.6	27.2	4.2	0.23	0.05	0.01	0.02	4.32	4.64	13.40	7.0	0.13	29.1	0.45	5.0	---
Bt1----14 to 21	39.9	17.5	42.6	1.47	1.45	0.04	0.07	10.61	13.65	10.20	22.3	2.36	43.8	5.40	4.8	KK-4, VR-1
Bt2----21 to 33	39.3	15.0	45.7	1.40	1.41	0.04	0.09	11.79	14.74	7.90	20.0	3.96	57.3	6.91	4.7	KK-4, VR-1, MT-1
Btg----33 to 45	32.3	13.8	53.9	1.85	1.57	0.07	0.13	17.30	20.94	14.00	17.4	7.52	67.4	1.16	4.5	KK-4, VR-1, MT-2
BCg1---45 to 52	44.8	21.0	34.2	1.65	1.24	0.06	0.13	15.72	18.87	11.20	16.4	6.19	66.7	9.28	4.5	---
BCg2---52 to 68	41.0	18.0	41.0	2.30	1.66	0.08	0.15	18.08	22.20	14.30	18.8	8.41	66.7	2.61	4.4	---
C------68 to 80	65.6	7.2	27.2	1.60	1.03	0.08	0.13	12.97	15.09	9.30	18.0	5.97	67.6	8.82	4.3	---
Goldsboro:																
Ap----- 0 to 9	79.1	17.5	3.4	2.06	0.42	0.22	0.10	6.00	8.79	---	31.8	0.00	0.0	2.79	6.2	---
E------ 9 to 16	77.1	18.6	4.3	0.59	0.24	0.08	0.12	4.87	5.90	---	17.4	0.00	0.0	1.02	6.2	---
Bt1----16 to 22	57.0	15.1	27.9	1.49	0.63	0.17	0.12	9.37	11.77	---	20.4	0.99	29.2	3.39	5.0	---
Bt2----22 to 35	59.2	14.9	25.8	1.19	0.57	0.12	0.15	9.37	11.40	---	17.8	1.33	39.7	3.36	4.9	KK-4, VR-2
Btg----35 to 65	62.0	14.3	23.7	0.74	0.47	0.06	0.15	7.12	8.53	---	16.5	1.55	52.4	2.97	4.7	KK-4, VR-2
BCg----65 to 75	61.0	7.1	31.8	0.76	0.67	0.04	0.14	10.12	11.73	---	13.7	2.66	62.3	4.28	4.5	---
Lynchburg:																
Ap----- 0 to 9	71.8	23.5	4.7	0.72	0.33	0.31	0.07	6.37	7.81	---	18.4	0.44	23.6	1.88	4.8	---
E------ 9 to 16	70.6	23.0	6.4	0.23	0.19	0.09	0.05	3.75	4.31	---	13.0	0.56	49.6	1.12	4.7	---
Btg1---16 to 35	70.9	10.7	18.4	0.28	0.24	0.03	0.04	5.25	5.84	---	10.1	2.06	77.8	2.66	4.4	KK-4, HIV-2, MT-1
Btg2---35 to 51	52.5	25.8	21.6	0.15	0.28	0.01	0.06	6.37	6.88	---	7.3	3.50	87.4	4.00	4.4	KK-4, HIV-1, MT-2
Btg3---51 to 65	49.7	25.0	25.4	0.04	0.43	0.02	0.09	8.62	9.20	---	6.3	5.04	89.7	5.62	4.5	KK-4, MT-2
Btg4---65 to 75	45.3	23.5	31.3	0.03	0.51	0.03	0.10	9.74	10.42	---	6.5	5.08	88.3	5.76	4.6	---

See footnote at end of table.

TABLE 17.--PHYSICAL, CHEMICAL, AND MINERALOGICAL PROPERTIES OF SELECTED SOILS--Continued

Soil name, horizon, and depth in inches	Total Sand (2-0.05 mm)	Total Silt (0.05-0.002 mm)	Total Clay (<0.002 mm)	Exchangeable bases Ca	Exchangeable bases Mg	Exchangeable bases K	Exchangeable bases Na	Extractable acidity	Cation-exchange capacity Sum of cations	Cation-exchange capacity Ammonium acetate	Base saturation	Exchangeable aluminum	Aluminum saturation	ECEC	pH	Clay mineralogy*
	Pct			Meq/100g							Pct	Meq/100g	Pct	Meq/100g		
Noboco:																
Ap----- 0 to 9	87.7	9.9	2.4	1.59	0.34	0.16	0.11	5.25	7.44	---	29.5	0.00	0.0	2.20	6.1	---
E------ 9 to 13	84.6	12.4	2.0	0.53	0.17	0.11	0.09	2.62	3.53	---	25.6	0.00	0.0	0.90	6.1	---
Bt1----13 to 33	53.6	11.9	34.4	1.64	0.67	0.25	0.09	9.74	12.40	---	21.4	0.95	26.5	3.61	4.9	---
Bt2----33 to 38	60.9	12.4	26.7	1.69	0.48	0.13	0.07	10.49	12.86	---	18.4	0.53	18.4	2.90	4.9	---
Bt3----38 to 58	54.3	12.3	33.5	0.84	0.37	0.10	0.10	8.62	10.02	---	14.0	1.44	50.7	2.85	4.7	---
Bt4----58 to 70	46.1	13.0	40.9	0.49	0.40	0.08	0.10	11.99	13.05	---	8.1	2.11	66.6	3.17	4.6	---
BC-----70 to 75	65.3	7.6	27.1	0.32	0.25	0.05	0.09	8.25	8.96	---	8.0	1.22	63.1	1.93	4.6	---
Norfolk:																
Ap----- 0 to 11	88.4	8.9	2.8	0.42	0.91	0.04	0.16	2.25	3.78	---	40.5	0.00	0.0	1.53	5.9	---
E------11 to 16	86.3	8.5	5.2	0.82	0.32	0.09	0.17	2.62	4.03	---	35.0	0.21	13.0	1.62	5.3	---
BE-----16 to 20	81.8	9.5	8.7	0.12	0.04	0.07	0.17	3.37	3.77	---	10.6	0.37	47.7	0.77	5.0	---
Bt1----20 to 38	71.6	8.3	20.1	0.17	0.04	0.09	0.18	4.12	4.61	---	10.6	0.57	53.7	1.05	5.0	KK-3, HIV-2, GB-2
Bt2----38 to 52	61.3	2.9	35.9	0.97	0.17	0.23	0.16	6.37	7.91	---	19.4	0.53	25.8	2.07	5.1	KK-4, HIV-1, GB-1
Bt3----52 to 60	54.7	7.5	37.7	1.37	0.66	0.21	0.20	8.25	10.68	---	22.8	1.61	39.8	4.05	4.6	---
Bt4----60 to 70	62.5	6.8	30.7	0.82	0.51	0.14	0.18	6.37	8.01	---	20.5	2.23	57.6	3.87	4.6	---
Ocilla:																
Ap----- 0 to 6	89.0	7.9	3.1	0.07	0.02	0.04	0.09	6.37	6.60	---	3.5	1.02	81.7	1.25	4.7	---
A------ 6 to 12	87.1	10.8	2.1	0.05	0.00	0.02	0.11	6.75	6.92	---	2.5	0.49	73.5	0.66	5.0	---
E------12 to 27	83.4	10.8	5.8	0.04	0.00	0.02	0.09	4.87	5.01	---	2.8	0.78	84.6	0.92	4.8	---
Bt1----27 to 46	74.4	8.5	17.0	0.14	0.23	0.03	0.12	6.37	6.89	---	7.5	1.33	72.0	1.85	5.1	---
Bt2----46 to 68	74.4	9.0	16.7	0.07	0.16	0.03	0.11	7.87	8.23	---	4.4	1.55	81.0	1.92	5.0	---
Btg----68 to 80	67.2	6.1	26.6	0.11	0.28	0.03	0.10	8.62	9.14	---	5.7	2.44	82.3	2.97	4.9	---
Pelham:																
A1----- 0 to 6	72.6	23.2	4.0	0.26	0.24	0.07	0.21	17.11	17.91	9.00	4.5	2.33	74.4	3.13	4.3	---
A2----- 6 to 14	77.2	19.1	3.5	0.09	0.01	0.02	0.18	9.95	10.26	3.40	3.0	1.22	79.3	1.53	4.4	---
E------14 to 34	78.7	17.7	3.4	0.12	0.02	0.01	0.15	5.57	5.89	1.70	5.4	0.33	50.9	0.65	4.9	---
Btg1---34 to 46	62.5	19.8	17.6	0.13	0.19	0.03	0.17	7.56	8.10	3.80	6.7	1.55	74.2	2.09	4.6	KK-4, VR-1
Btg2---46 to 50	58.2	17.7	24.0	0.12	0.23	0.02	0.18	7.16	7.73	4.80	7.4	2.22	79.7	2.79	4.4	---
Btg3---50 to 75	59.7	15.6	24.5	0.09	0.23	0.03	0.13	8.75	9.25	4.90	5.3	2.66	84.3	3.15	4.6	KK-4, VR-2
Plummer:																
A------ 0 to 6	79.2	16.6	4.1	0.40	0.18	0.10	0.18	19.61	20.48	10.20	4.3	2.77	76.0	3.64	4.1	---
E1----- 6 to 11	86.3	10.0	3.5	0.16	0.02	0.02	0.11	5.49	5.80	2.70	5.5	0.84	72.7	1.16	4.5	---
E2-----11 to 19	84.1	10.4	5.3	0.08	0.03	0.01	0.09	3.13	3.37	2.00	6.9	1.07	82.2	1.30	4.3	---
E3-----19 to 29	82.0	9.6	8.2	0.21	0.04	0.02	0.09	3.92	4.31	2.80	9.0	1.77	82.0	2.16	4.8	---
E4-----29 to 59	88.3	8.1	3.4	0.12	0.02	0.01	0.14	1.96	2.27	1.10	13.7	0.49	61.6	0.81	4.1	---
E5-----59 to 65	83.5	7.9	8.4	0.09	0.06	0.02	0.12	1.96	2.26	1.70	13.5	0.89	74.7	1.20	4.5	---
Btg----65 to 80	77.1	6.0	16.8	0.11	0.09	0.03	0.08	3.92	4.25	3.00	7.9	1.44	81.0	1.78	4.4	KK-4, VR-1

See footnote at end of table.

TABLE 17.--PHYSICAL, CHEMICAL, AND MINERALOGICAL PROPERTIES OF SELECTED SOILS--Continued

Soil name, horizon, and depth in inches	Total: Sand (2-0.05 mm)	Total: Silt (0.05-0.002 mm)	Total: Clay (<0.002 mm)	Exchangeable bases: Ca	Exchangeable bases: Mg	Exchangeable bases: K	Exchangeable bases: Na	Extractable acidity	Cation-exchange capacity: Sum of cations	Cation-exchange capacity: Ammonium acetate	Base saturation	Exchangeable aluminum	Aluminum saturation	ECEC	pH	Clay mineralogy*
	Pct			Meq/100g							Pct	Meq/100g	Pct	Meq/100g		
Pungo:																
Oa1---- 0 to 21	---	---	---	0.60	1.16	0.78	0.33	71.24	74.11	63.20	3.9	5.84	67.0	8.72	3.0	---
Oa2----21 to 38	---	---	---	0.34	0.37	0.11	0.76	66.06	67.67	74.30	2.4	5.62	77.8	7.23	3.1	---
Oe-----38 to 59	---	---	---	0.28	0.22	0.11	0.89	58.50	60.02	52.10	2.5	3.40	69.1	4.92	3.3	---
Cg1----59 to 65	22.8	52.6	24.4	0.21	0.14	0.12	0.32	21.89	22.70	12.30	3.6	4.18	83.7	4.99	3.7	---
Cg2----65 to 75	21.5	50.2	28.2	0.70	0.91	0.22	0.30	7.89	10.10	8.40	21.2	2.85	57.1	4.99	4.0	---
Rains:																
A------ 0 to 6	73.7	21.2	5.1	0.06	0.02	0.04	0.11	11.62	11.84	---	1.8	1.67	88.4	1.88	4.5	---
E------ 6 to 10	74.5	19.5	6.0	0.04	0.00	0.03	0.09	3.37	3.53	---	4.6	1.09	87.1	1.25	4.5	---
Btg1---10 to 28	65.1	18.5	16.4	0.09	0.10	0.03	0.10	6.37	6.69	---	4.8	2.33	87.9	2.65	4.7	---
Btg2---28 to 54	55.4	13.2	31.4	0.12	0.22	0.03	0.09	9.00	9.46	---	4.9	2.44	84.0	2.91	4.8	---
Btg3---54 to 66	55.5	13.8	30.7	0.18	0.37	0.04	0.10	10.49	11.18	---	6.2	3.61	84.0	4.29	4.8	---
Btg4---66 to 80	53.9	8.9	37.3	0.19	0.42	0.05	0.10	10.49	11.26	---	6.8	4.77	86.3	5.53	4.8	---
Rembert:																
Ap----- 0 to 7	37.3	33.7	28.9	3.30	1.49	0.93	0.18	19.50	25.42	15.80	23.3	1.03	14.9	6.95	4.8	---
Btg1--- 7 to 19	42.6	20.8	36.5	0.60	0.35	0.09	0.18	8.75	9.98	7.50	12.3	3.77	75.4	5.00	4.2	KK-4, VR-1
Btg2---19 to 33	44.7	21.4	33.8	0.50	0.66	0.08	0.18	8.75	10.19	9.20	14.1	4.32	75.0	5.76	4.2	KK-4, VR-2
BCg----33 to 54	75.0	0.7	24.2	0.13	0.39	0.02	0.17	1.99	2.71	4.10	26.6	1.88	72.3	2.60	3.8	---
2Cg----54 to 80	71.2	0.9	27.8	0.28	0.78	0.02	0.20	1.59	2.89	3.90	45.0	1.60	55.3	2.90	3.7	---

* GB means gibbsite; HIV, hydroxy-Al interlayered vermiculite; KK, kaolinite; MT, montmorillonite; and VR, vermiculite. The number 4 indicates that the clay mineral makes up more than 50 percent of the clay fraction; the number 3, 25 to 50 percent; the number 2, 10 to 25 percent; and the number 1, less than 10 percent.

TABLE 18.--CLASSIFICATION OF THE SOILS

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

Soil name	Family or higher taxonomic class
Alaga	Thermic, coated Typic Quartzipsamments
Alpin	Thermic, coated Typic Quartzipsamments
Argent	Fine, mixed, thermic Typic Ochraqualfs
Autryville	Loamy, siliceous, thermic Arenic Paleudults
Blanton	Loamy, siliceous, thermic Grossarenic Paleudults
Bonneau	Loamy, siliceous, thermic Arenic Paleudults
Brookman	Fine, mixed, thermic Typic Umbraqualfs
Byars	Clayey, kaolinitic, thermic Umbric Paleaquults
Cahaba	Fine-loamy, siliceous, thermic Typic Hapludults
Centenary	Sandy, siliceous, thermic Grossarenic Entic Haplohumods
*Chastain	Fine, mixed, acid, thermic Typic Fluvaquents
Chipley	Thermic, coated Aquic Quartzipsamments
Coxville	Clayey, kaolinitic, thermic Typic Paleaquults
Echaw	Sandy, siliceous, thermic Entic Haplohumods
Elloree	Loamy, siliceous, thermic Arenic Ochraqualfs
Emporia	Fine-loamy, siliceous, thermic Typic Hapludults
Eulonia	Clayey, mixed, thermic Aquic Hapludults
Foxworth	Thermic, coated Typic Quartzipsamments
Goldsboro	Fine-loamy, siliceous, thermic Aquic Paleudults
Grifton	Fine-loamy, siliceous, thermic Typic Ochraqualfs
Haplaquents	Haplaquents
Lakeland	Thermic, coated Typic Quartzipsamments
Leon	Sandy, siliceous, thermic Aeric Haplaquods
Lynchburg	Fine-loamy, siliceous, thermic Aeric Paleaquults
Nakina	Fine-loamy, siliceous, thermic Typic Umbraqualfs
Nansemond	Coarse-loamy, siliceous, thermic Aquic Hapludults
Noboco	Fine-loamy, siliceous, thermic Typic Paleudults
Norfolk	Fine-loamy, siliceous, thermic Typic Kandiudults
Ocilla	Loamy, siliceous, thermic Aquic Arenic Paleudults
*Osier	Siliceous, thermic Typic Psammaquents
Pantego	Fine-loamy, siliceous, thermic Umbric Paleaquults
Pelham	Loamy, siliceous, thermic Arenic Paleaquults
Pickney	Sandy, siliceous, thermic Cumulic Humaquepts
Plummer	Loamy, siliceous, thermic Grossarenic Paleaquults
Pungo	Dysic, thermic Typic Medisaprists
Rains	Fine-loamy, siliceous, thermic Typic Paleaquults
Rembert	Clayey, kaolinitic, thermic Typic Ochraquults
Rutlege	Sandy, siliceous, thermic Typic Humaquepts
*Seagate	Sandy over loamy, siliceous, thermic Ultic Haplohumods
Tawcaw	Fine, kaolinitic, thermic Fluvaquentic Dystrochrepts
Uchee	Loamy, siliceous, thermic Arenic Hapludults
Wahee	Clayey, mixed, thermic Aeric Ochraquults

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