



United States
Department of
Agriculture



NRCS

Natural
Resources
Conservation
Service

In cooperation with
Louisiana Agricultural
Experiment Station and
the Louisiana Soil and
Water Conservation
Commission

Soil Survey of St. John the Baptist Parish, Louisiana



How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, 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.

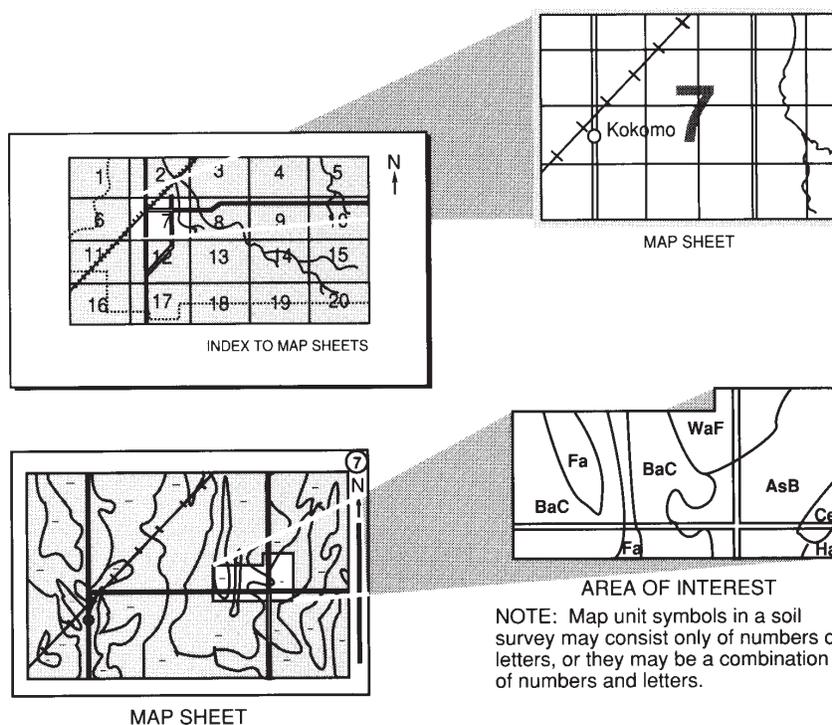
Detailed Soil Maps

The detailed soil maps 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**. Note the number of the map sheet and turn to that sheet.

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

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



This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the 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. This survey was made cooperatively by the Natural Resources Conservation Service, the Louisiana Agricultural Experiment Station and the Louisiana Soil and Water Conservation Commission. The survey is part of the technical assistance furnished to the Crescent Soil and Water Conservation District. This soil survey updates the survey of St. James and St. John the Baptist Parishes, Louisiana, published in August 1973 (USDA, 1973).

Major fieldwork for this soil survey was completed in 2003. Soil names and descriptions were approved in 2003. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2003. The most current official data are available on the Internet.

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

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Cover: Typical landscape and vegetation in an area of Barbary soils, frequently flooded, which is an excellent wetland wildlife habitat.

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

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Foreword

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. The surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

Soil surveys are designed for many different users. Farmers, ranchers, foresters, and agronomists can use the surveys 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 surveys 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 surveys to help them understand, protect, and enhance the environment.

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

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

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



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State Conservationist
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Where to Get Updated Information

The soil properties and interpretations included in this survey were current as of 2003. The most current information is available through the Natural Resources Conservation Service Soil Data Mart Website at <http://soildatamart.nrcs.usda.gov/> and/or the Natural Resources Conservation Service Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov/app>.

Additional information is available from the Natural Resources Conservation Service Field Office Technical Guide at Boutte, Louisiana, or online at www.nrcs.usda.gov/technical/efotg. The data in the Field Office Technical Guide are updated periodically.

Additional information about soils and about the Natural Resources Conservation Service is available through the Louisiana Natural Resources Conservation Service Web page at www.la.nrcs.usda.gov.

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Soil Survey of St. John the Baptist Parish, Louisiana

By Burnell Muse, Natural Resources Conservation Service

Fieldwork by Burnell Muse and Lyfon Morris, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
Louisiana Agricultural Experiment Station and the Louisiana Soil and Water Conservation Commission

This soil survey updates the survey of St. James and St. John the Baptist Parishes, Louisiana, published in August 1973 (USDA, 1973). It provides additional information and the soils are described in greater detail.

St. John the Baptist Parish is in the southeastern part of Louisiana (fig. 1). The total area is 220,500 acres, of which 138,266 acres is land and 82,234 acres is large water areas in the form of lakes, bays, and streams. St. John the Baptist Parish is bordered by Livingston and Tangipahoa Parishes on the north, St. Charles Parish on the east, Lafourche Parish on the south, and Ascension and St. James Parishes on the west.

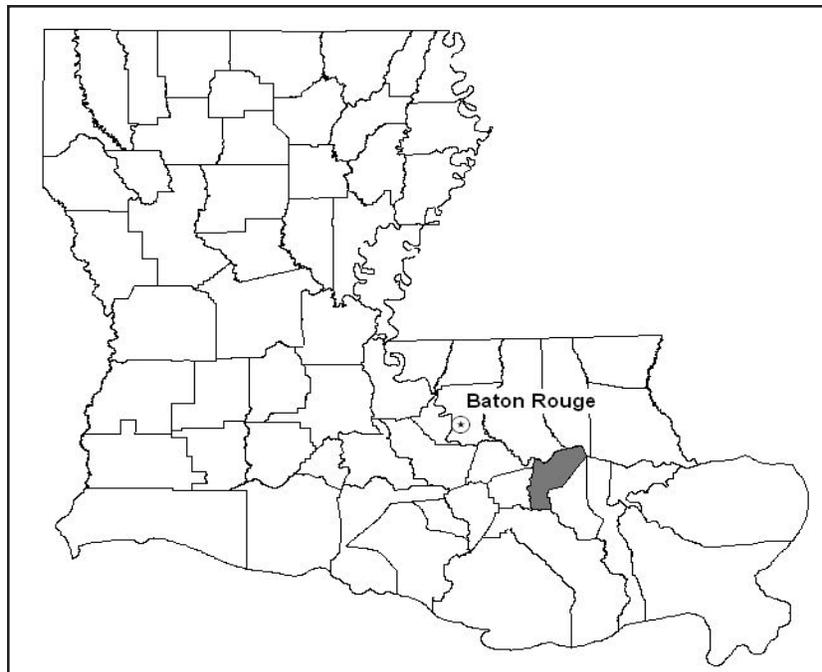


Figure 1.—Location of St. John the Baptist Parish in Louisiana.

Edgard is the parish seat and is located about 40 miles west of New Orleans. In 2000, the population of St. John the Baptist Parish was 43,044 and was mostly centered around the LaPlace and Reserve area. The parish is chiefly rural and extends into the broad swamps and narrow areas of freshwater marsh. Presently, urban development is expanding and areas of the swamps are decreasing.

St. John the Baptist Parish lies entirely within the southeastern region of the Mississippi River Delta Plain. It is made up of two Major Land Resource Areas (MLRAs). MLRA 131A, the Southern Mississippi Valley Alluvium, makes up about 93 percent of the area, and MLRA 151, the Gulf Coast Marsh, makes up the remaining 7 percent of the parish. The soils of the natural levees formed in sediments deposited by former channels of the Mississippi River. Loamy soils are dominant on the high and intermediate parts of the natural levees, and clayey soils are dominant on the lower parts of the natural levees and in backswamps. The loamy soils and the clayey soils that rarely flood make up about 29 percent of the total land area of the parish. These soils are used mainly for crops, urban, and industrial purposes. A few areas are used as pastureland and woodland. The clayey soils on the lowest parts of the landscape are subject to occasional or frequent flooding and make up about 8 percent of the total land area of the parish. The clayey soils are used mainly for timber production, pasture, recreation, and wildlife.

The remaining 63 percent of the land area of St. John the Baptist Parish consists mainly of ponded, frequently flooded, and very frequently flooded, mucky and clayey, fluid soils in marshes and swamps. They are used mainly as habitat for wetland wildlife and for recreation.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

General Nature of the Parish

This section provides general information about the survey area. It describes the climate, history, transportation, water resources, industry, and agriculture of the parish.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at New Orleans, Louisiana, in the period 1961 to 2000. 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 54 degrees F and the average daily minimum temperature is 45 degrees. The lowest temperature on record, which occurred at LaPlace on January 23, 1963, was 21 degrees. In summer, the average temperature is 81 degrees and the average daily maximum temperature is 90 degrees. The highest temperature, which occurred on August 31, 1981, was 101 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 average annual precipitation is about 64 inches. Of this, about 54 inches, or 85 percent, usually falls in February through November. The growing season for most crops falls within this period. The heaviest rainfall during the period of record was

12 inches at LaPlace on August 9-11, 2004. Thunderstorms occur on about 69 days each year, and most occur between June and September.

Snowfall is rare. The greatest snow depth at any one time during the period of record was 2 inches recorded on December 23, 1989, and this was only the third time in 70 years that snow had fallen.

The average relative humidity in midafternoon is about 63 percent. Humidity is higher at night, and the average at dawn is about 88 percent. The sun shines 63 percent of the time in summer and 50 percent in winter. The prevailing wind is from the south from March to June, and generally from the northeast during all other months. Average wind speed is highest, around 9 miles per hour, from January to April.

History

St. John the Baptist Parish was the second permanent settlement in Louisiana and established in the early 1720s by settlers of German descent. A settlement was created on the west bank of the Mississippi River in the area now known as Lucy, which was originally named Karistein. Some families also began farming land on the east bank, in what is now Garyville and Reserve. The area remained under the French regime until 1768, when France delivered Louisiana to the Spanish. At this time, the Acadians, or "Cajuns," began arriving in South Louisiana after being exiled from Nova Scotia. The first Acadian settlement was established at what is now called Wallace. In these early years, transportation was by boat, some on the Mississippi River, which was treacherous, but mainly on the many bayous and lakes. Few roads existed.

St. John the Baptist Parish, with its fertile land being about 9 feet above sea level, proved to be excellent for farming. German settlers grew crops that fed early New Orleans settlers. Early settlers in St. John the Baptist Parish would paddle their small boats filled with produce to sell at the "French Market" along the New Orleans river front.

In 1807, the territory of New Orleans was divided into 12 counties, and the German Coast was one of those counties. Later, the territory of New Orleans was divided into 19 parishes, and St. John the Baptist was one of those parishes. It received its name from the religious parish of St. John the Baptist. The parish seat was established in the village of Lucy. In 1848, the parish seat was moved to Edgard. The Jesuit fathers were the first religious order to settle in the area. The parish contains several ancient cemeteries. One of them, located in Reserve, is the burial place of Caroline Desionde, wife of Civil War General Beauregard. The historic Edgard Cemetery has been in existence since the first church was built there in 1722. The church was constructed of handmade cypress lumber. In 1869, a wooden church was built on the east bank, thus St. Pierre was established. St. Peter's Church was constructed in 1897, only to be destroyed by Hurricane Betsy in 1965.

When sugar was introduced by the Jesuit Fathers in 1751, it took precedence over other industries. In 1758, the first sugarhouse was erected by Joseph Dubreuil. In 1860, Leon Godchaux, owner of Reserve Plantation, conceived the idea of centralization in processing, and in 1917, a refinery was added to the factory. While ownership has changed, Godchaux Sugars remains a landmark in St. John the Baptist Parish.

During the era before the Civil War several beautiful homes were built in St. John the Baptist Parish. Evergreen Plantation, with its "flying staircases," was built around 1820 at Wallace. The stately San Francisco, with its Steamboat Gothic fame, was built in 1853 and is located at Lions. The Reserve Plantation House on the sugar refinery grounds was built around 1820.

Land clearing began around 1728. Crops at that time were tobacco, indigo, and lumber. Sugarcane became the chief crop in 1751 when it was introduced by the Jesuits. The Lyon Cypress Lumber Company in Garyville operated from 1903 to 1931 and milled cypress until 1915 when the supply decreased and pine and hardwood took over. The mill suffered two major fires over its lifetime. Another lumber mill was the Ruddock Lumber Company located in the community of Ruddock. It was one of the largest mills prior to 1900, but was not nearly as large as the Lyon Cypress Lumber Company.

The first schools in the parish were established around 1869 and taught in French language. The first high schools at Edgard and Reserve were built in 1909. Today the parish has 18 schools.

Eight (8) communities comprise the total area of St. John the Baptist Parish. The towns of Lucy, Edgard, and Wallace lie on the west bank of the Mississippi River and are primarily agricultural with rows and rows of sugarcane fields. The east bank has LaPlace, Reserve, Lions, Garyville, and Mt. Airy, each with a bustling community. Industries follow along the river, including chemical plants, a sugar refinery, grain elevators, and an oil refinery.

The people of St. John the Baptist Parish have retained many old customs. On Christmas Eve the river road is lined with visitors who come to view the bonfires that dot the levees on both sides of the river. Andouille, a unique tasting gumbo sausage, was made during the winter when the hogs were butchered at Laboucherie. St. John the Baptist Parish is so proud of its andouille that LaPlace has been designated Andouille Capital of the World.

Transportation

Interstate 10, U.S. Highway 61, and Louisiana State Highways 3127 and 18 provide east/west routes through the parish. Interstate 55, U.S. Highway 51, and Louisiana State Highway 44 provide north/south access through the parish. The Veterans Memorial Bridge crosses the Mississippi River and connects directly with Interstate 10 on the west bank of St. John the Baptist Parish.

Nineteen (19) railroads and 2,200 miles of mainline track form a statewide transportation network in which shipments are moved within and beyond the state to every major market in the United States. East Bank, West Bank, Illinois Central Gulf, Union Pacific, Kansas City Southern, and Louisiana and Arkansas Central are the major railways that cross the parish.

New Orleans International Airport is located 20 miles east of St. John the Baptist Parish. Every major domestic airline and several international carriers serve the New Orleans International Airport providing service to nearly all major domestic and international destinations. St. John the Baptist Parish General Aviation Airport located in Reserve can accommodate corporate and private aircrafts. Services include freight and cargo deliveries for local industry and private transportation.

The world's most important inland water system, the Mississippi River, rolls through the center of St. John the Baptist Parish with access to domestic and international shipping and an abundance of fresh water for processing. The Port of South Louisiana is located along the Mississippi River midway between New Orleans and Baton Rouge. Every year over half of the 7,000 deep-draft vessels entering the Mississippi River call at the port, making it the top ranked port in the United States in both export and total tonnage. Globalplex Intermodal Terminal is a 205-acre south Louisiana facility that provides a public deep water dock for ships and barges. It also provides direct service to the Kansas City Southern and Illinois Central Railroads. Interstates 10 and 55 are readily accessible.

Water Resources

Surface Water

The principal source of the surface water in St. John the Baptist Parish is the Mississippi River.

Ground Water

Four (4) major freshwater-bearing aquifer systems are in the Reserve-LaPlace area (Cook and Scarcia, 1955). These are, in descending order, the shallow aquifers that include point bars, the Gramercy aquifer, the Norco aquifer, and the Gonzales-New Orleans aquifer.

Shallow aquifers of limited and irregular extent are in the parish generally at a depth less than 150 feet. Sand extensive enough to produce substantial amounts of water occurs as abandoned channel deposits of the Mississippi River and its distributaries and as point-bar deposits of the Mississippi River. The restricted occurrence of these aquifers limits their availability to local areas. Water from these shallow aquifers is characteristically very hard and high in iron content. The chloride content is low, but may be high locally where a small aquifer is hydraulically connected to shallow aquifers that are mainly used as a source of supply for small livestock wells.

The Gramercy aquifer, the "200-foot" sand, is the least continuous of the major aquifers in the Reserve area. This aquifer is important in that it acts as a hydraulic link between the overlying aquifers. The quality of water is and may continue to be a limiting factor in development of the aquifer. The chloride level continues to decrease in many of the areas now containing salty water. However, the displacing water, although low in chloride, is extremely hard.

The Norco aquifer, the "400-foot" sand, is the most important aquifer in the parish. This aquifer ranges in thickness from 100 to 500 feet. The regional dip of the aquifer is to the south about 10 feet per mile. In the vicinity of LaPlace, this aquifer is about 300 feet deep, and it is more than 400 feet deep in the southern part of St. Charles Parish. A layer of clay, 200- to 300-feet thick, separates the Norco aquifer from the underlying Gonzales-New Orleans aquifer.

The Gonzales-New Orleans aquifer, the "700 foot" sand, underlies the entire parish and is the thickest of the three aquifers. It has a regional dip of 25 to 50 feet per mile to the south and an average thickness of about 200 to 250 feet. Depth to the top of the aquifer ranges from 450 feet in the vicinity of Lake Pontchartrain to about 800 feet near Lake Cataouatche. Water quality is the most restrictive factor governing development of the Gonzales-New Orleans aquifer. Water levels are still high, and the aquifer is capable of yielding large quantities of water. However, any pumping from parts of the aquifer above or near the surface will be accompanied by increased salinity of the pumped water.

Industry

St. John the Baptist Parish is part of the major industrial region of southeastern Louisiana. The area west of Reserve to the St. Charles Parish line is rapidly expanding, largely because of its location on the Mississippi River and close distance to New Orleans. This area of the parish is occupied by several industrial sites, including chemical plants, refineries, and cargo facilities. The petroleum and chemical manufacturing industries are the major employers. Other employment sectors include construction, transportation, and wholesale and retail trades and services.



Figure 2.—Cargo ship unloading onto barges on the Mississippi River.

St. John the Baptist Parish is home to 20 miles of the 52-mile long Port of South Louisiana Facility along the Mississippi River (fig. 2). Globalplex Intermodal Terminal is a massive 205-acre facility located near Reserve and is part of the Port of South Louisiana system. The Globalplex Intermodal Terminal handles over 260 million tons of goods each year and receives 4,000 ocean-going vessel calls and 52,107 barge movements, making it the top ranked port in the country for export and total tonnage. Cargo is also brought in by rail and trucks. The facility exported over 51 million tons of agriculture cargo in 2006, with another 58 million tons of domestic shipments.

The seafood industry is also a major portion of the economy of St. John the Baptist Parish. In 2002, total seafood sales were \$256,650. Shrimp, oysters, crawfish, and crabs are the main seafood in the parish that is sold commercially.

The tourism industry is very active in St. John the Baptist Parish. Tourist attractions include walking tours, swamp boat tours, bus and guided automobile tours, and tours of plantation homes. Creole cottages, centuries-old cemeteries, and ferryboats along the Great River Road on both sides of the Mississippi River throughout St. John the Baptist Parish provide a unique look into the history of the parish. Also, Christmas Eve bonfires along the levee, the oldest operating sugarcane refinery in the United States, and the Garyville Timbermill Museum and festival are unique to the area.

Agriculture

The soils on natural levees in St. John the Baptist Parish have always been used for farming, even during Indian habitation. Trappers and traders probably arrived in the region first, but farmers soon followed. Sugarcane, cotton, corn, maize, and soybeans were grown on the loamy soils on the natural levees before indigo became an important crop for a short time (fig. 3). Cotton was the main crop for many years, but gradually the acreage decreased, and cotton has not been planted in recent years.

An increase in the production of sugarcane was the chief reason for the decline of the cotton crop. Production became important after sugar granulation procedures



Figure 3.—Foreground—an area of Cancienne silt loam, 0 to 1 percent slopes, is excellent for sugarcane. Background—Old Columbia Sugar Mill built in 1825.

were developed successfully in 1794. A few sugarcane plantations were established in the early 1800s, but it was not until 1860 that sugarcane became the principal crop in the parish. Since then, most soils in the parish that are not subject to flooding have been used for the production of sugarcane.

How This Survey Was Made

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

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

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

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

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

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

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

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

General Soil Map Units

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

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

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

The general soil map legend consists of seven (7) major soil map units that make up 60.6 percent of the total area in St. John the Baptist Parish and four (4) miscellaneous areas that encompass the remaining 39.4 percent. The miscellaneous areas include urban and built-up land, industrial pits, and levee and borrow pit complexes that make up 1.4 percent and water that comprises 38 percent.

Soils on Natural Levees

The map units in this group consist mainly of level, somewhat poorly drained, loamy and clayey soils that are on natural levees along the Mississippi River and in the vicinity of Lower Vacherie.

This group of map units makes up about 15 percent of the total area. Most of the acreage is used as cropland or urban land. A few areas are used as pastureland, woodland, wildlife habitat, and for recreation.

Wetness, low strength, and shrink-swell potential in the subsoil are the main limitations for urban uses.

1. Cancienne-Carville

Level, somewhat poorly drained soils that have a loamy surface layer and a clayey subsoil or that are loamy throughout

Setting

Landform: Natural levee

Landform position: Highest positions on natural levees

Distinctive landform features: None

Slope range: 0 to 1 percent

Composition

Percent of the survey area: 9 percent

Cancienne soils—67 percent

Carville soils—32 percent

Minor soils—1 percent (Gramercy and Schriever soils and Levees-Borrow pits)

Typical Profile

Cancienne

Surface layer:

0 to 10 inches—dark grayish brown silt loam

10 to 23 inches—dark grayish brown silt loam and silty clay loam with yellowish brown and strong brown oxidized iron masses

Subsoil layer:

23 to 34 inches—grayish brown and grayish brown silt loam

34 to 42 inches—olive yellow and grayish brown silt loam

42 to 67 inches—grayish brown silty clay and silty clay loam with dark yellowish brown oxidized iron

Substratum layer:

67 to 80 inches—grayish brown silt loam with strong brown and yellowish brown oxidized iron

Carville

Surface layer:

0 to 13 inches—dark grayish brown and grayish brown silt loam

Subsoil layer:

13 to 19 inches—grayish brown and brown silt loam with brown masses of oxidized iron

19 to 33 inches—brown and grayish brown silt loam with brown and yellowish brown oxidized iron

33 to 39 inches—dark yellowish brown silt loam with strong brown oxidized iron and gray depletions

39 to 75 inches—grayish brown and dark greenish gray silt loam with brown and yellowish brown oxidized iron accumulations

Soil Properties and Qualities

Cancienne

Depth class: Very deep

Drainage class: Somewhat poorly drained

Water table: Perched at 1.5 to 4 feet

Flooding: None

Runoff: Low

Permeability class: Moderately slow

Available water capacity: Very high

Natural soil fertility: High

Shrink-swell potential: Moderate

Slope: Level to nearly level

Carville

Depth class: Very deep

Drainage class: Somewhat poorly drained

Water table: Apparent at 1 to 2.5 feet

Flooding: None

Runoff: Low

Permeability class: Moderate

Available water capacity: High
Natural soil fertility: High
Shrink-swell potential: Low
Slope: Level to nearly level

Land Use

Dominant uses: Cropland
Other uses: Pasture, woodland, and residential

Cropland

Suitability: Moderately well suited
Management concerns: Wetness

Pasture and Hayland

Suitability: Well suited
Management concerns: Wetness

Woodland

Suitability: Moderately well suited
Management concerns: Wetness

Wildlife Habitat

Suitability for wetland wildlife: Fair
Suitability for woodland wildlife: Good

Urban Use

Septic tank absorption fields

Limitation rating: Severe
Limitations: Wetness

Dwellings without basements

Limitation rating: Moderate
Limitations: Carville—wetness; Canceled—shrink-swell

Local roads and streets

Limitation rating: Canceled—severe; Carville—moderate
Limitations: Canceled—low strength and shrink-swell; Carville—wetness

Lawns, landscaping, and golf fairways

Limitation rating: Moderate
Limitations: Wetness

Recreational Use

Camp and picnic areas

Limitation rating: Moderate
Limitations: Carville—wetness; Canceled—moderately slow percolation

Playgrounds

Limitation rating: Moderate
Limitations: Carville—wetness; Canceled—moderately slow percolation

2. Gramercy-Schriever

Level, poorly drained soils that have a clayey surface layer and a clayey subsoil

Setting

Landform: Natural levee

Landform position: Gramercy—intermediate positions on natural levees; Schriever—
lower positions on natural levees

Distinctive landform features: None

Slope range: 0 to 1 percent

Composition

Percent of the survey area: 6 percent

Gramercy soils—57 percent

Schriever soils—42 percent

Minor soils—1 percent (Barbary, Cancienne, and Carville soils and Levees-
Borrow pits)

Typical Profile

Gramercy

Surface layer:

0 to 11 inches—very dark gray silty clay

Subsoil layer:

11 to 36 inches—gray silty clay

36 to 48 inches—gray clay and silty clay

48 to 63 inches—dark gray and gray silty clay loam

63 to 80 inches—gray silty clay

Schriever

Surface layer:

0 to 8 inches—dark grayish brown clay

Subsoil layer:

8 to 13 inches—dark gray clay

13 to 80 inches—gray clay

Soil Properties and Qualities

Gramercy

Depth class: Very deep

Drainage class: Poorly drained

Water table: Perched at 0 to 2 feet

Flooding: None

Runoff: High

Permeability class: Impermeable

Available water capacity: High

Natural soil fertility: High

Shrink-swell potential: Very high

Slope: Level to nearly level

Schriever

Depth class: Very deep

Drainage class: Poorly drained

Water table: Apparent at 0 to 2 feet

Flooding: Rare

Runoff: High

Permeability class: Impermeable

Available water capacity: Moderate

Natural soil fertility: High

Shrink-swell potential: Very high

Slope: Level to nearly level

Land Use

Dominant uses: Cropland, woodland, residential, and campsites

Other uses: Pasture

Cropland

Suitability: Moderately well suited

Management concerns: Wetness, low strength, and stickiness

Pasture and Hayland

Suitability: Moderately well suited

Management concerns: Wetness

Woodland

Suitability: Moderately well suited

Management concerns: Wetness, low strength, and stickiness

Wildlife Habitat

Suitability for wetland wildlife: Good

Suitability for woodland wildlife: Good

Urban Use

Septic tank absorption fields

Limitation rating: Severe

Limitations: Wetness and slow percolation

Dwellings without basements

Limitation rating: Severe

Limitations: Wetness and shrink-swell

Local roads and streets

Limitation rating: Severe

Limitations: Low strength and shrink-swell

Lawns, landscaping, and golf fairways

Limitation rating: Severe

Limitations: Wetness and too clayey

Recreational Use

Camp and picnic areas

Limitation rating: Severe

Limitations: Wetness, flooding, slow percolation, and stickiness

Playgrounds

Limitation rating: Severe

Limitations: Schriever—wetness, too clayey, and slow percolation; Gramercy—
wetness and slow percolation

Soils on Flood Plains

The map units in this group consist mainly of level, somewhat poorly and very poorly drained, loamy soils that are on natural levees along the Mississippi River and northeast of LaPlace.

This group of map units makes up about 5 percent of the total area. Most areas of these soils that are occasionally or frequently flooded are used as woodland and wildlife habitat with a few small areas used as pastureland. The soils that are rarely flooded are used as cropland and urban land.

Wetness, low strength, and flooding are the main limitations for urban uses.

3. Cancienne-Carville

Level, somewhat poorly drained soils that have a loamy surface layer and a clayey subsoil or that are loamy throughout

Setting

Landform: Flood plain

Landform position: Cancienne—swales on natural levees; Carville—high positions on natural levees

Distinctive landform features: None

Slope range: 0 to 3 percent

Composition

Percent of the survey area: 3 percent

Cancienne soils—58 percent

Carville soils—41 percent

Minor soils—1 percent (Gramercy and Schriever soils and Levees-Borrow pits)

Typical Profile

Cancienne

Surface layer:

0 to 2 inches—dark gray silty clay loam

2 to 6 inches—dark grayish brown silt loam

Subsoil layer:

6 to 12 inches—dark gray silty clay loam

12 to 18 inches—pale brown silt loam

18 to 32 inches—dark grayish brown very fine sandy loam

Substratum layer:

32 to 41 inches—dark gray silty clay loam

41 to 49 inches—very dark grayish brown silty clay loam

49 to 63 inches—dark grayish brown stratified very fine sandy loam to silt loam

63 to 80 inches—dark gray stratified very fine sandy loam to silt loam to silty clay loam

Carville

Surface layer:

0 to 7 inches—dark grayish brown silt loam

7 to 14 inches—grayish brown very fine sandy loam

Subsoil layer:

14 to 23 inches—grayish brown very fine sandy loam

Substratum layer:

23 to 25 inches—brown stratified very fine sandy loam

25 to 27 inches—dark grayish brown silt loam

27 to 80 inches—dark grayish brown, grayish brown, and brown stratified very fine sandy loam

Soil Properties and Qualities

Cancienne

Depth class: Very deep

Drainage class: Somewhat poorly drained

Water table: Perched at 1.5 to 4 feet

Flooding: Frequent

Runoff: Low

Permeability class: Moderately slow

Available water capacity: Very high
Natural soil fertility: High
Shrink-swell potential: Moderate
Slope: Level to nearly level

Carville

Depth class: Very deep
Drainage class: Somewhat poorly drained
Water table: Apparent at 1 to 2.5 feet
Flooding: Frequent
Runoff: Low
Permeability class: Moderate
Available water capacity: Very high
Natural soil fertility: High
Shrink-swell potential: Low
Slope: Level to gently sloping

Land Use

Dominant uses: Woodland and wildlife habitat
Other uses: Pasture

Cropland

Suitability: Very poorly suited
Management concerns: Wetness and flooding

Pasture and Hayland

Suitability: Poorly suited
Management concerns: Wetness and flooding

Woodland

Suitability: Moderately well suited
Management concerns: Wetness, flooding, and low strength

Wildlife Habitat

Suitability for wetland wildlife: Fair
Suitability for woodland wildlife: Good

Urban Use

Septic tank absorption fields

Limitation rating: Severe
Limitations: Flooding and wetness

Dwellings without basements

Limitation rating: Severe
Limitations: Flooding and wetness

Local roads and streets

Limitation rating: Severe
Limitations: Flooding and low strength

Lawns, landscaping, and golf fairways

Limitation rating: Severe
Limitations: Flooding and wetness

Recreational Use

Camp and picnic areas

Limitation rating: Severe
Limitations: Flooding and wetness

Playgrounds*Limitation rating:* Severe*Limitations:* Flooding and wetness**4. Schriever***Level, very poorly drained soils that have a clayey surface layer and a clayey subsoil***Setting***Landform:* Flood plain*Landform position:* Low positions on natural levees*Distinctive landform features:* None*Slope range:* 0 to 1 percent**Composition**

Percent of the survey area: 2 percent

Schriever soils—99 percent

Minor soils—1 percent (Barbary, Cancienne, and Gramercy soils and Levees-Borrow pits)

Typical Profile*Surface layer:*

0 to 4 inches—dark gray clay

Subsoil layer:

4 to 15 inches—gray clay with brown iron accumulations

15 to 23 inches—gray clay with dark yellowish brown iron accumulations

23 to 60 inches—gray clay with yellowish brown and dark yellowish brown iron accumulations

60 to 80 inches—gray clay with brown and yellowish brown iron accumulations

Soil Properties and Qualities*Depth class:* Very deep*Drainage class:* Very poorly drained*Water table:* Apparent at 0 to 2 feet*Flooding:* Frequent*Runoff:* Negligible*Permeability class:* Impermeable*Available water capacity:* Moderate*Natural soil fertility:* High*Shrink-swell potential:* Very high*Slope:* Level to nearly level**Land Use***Dominant uses:* Woodland and wildlife habitat*Other uses:* Pasture**Cropland***Suitability:* Very poorly suited*Management concerns:* Wetness and flooding**Pasture and Hayland***Suitability:* Poorly suited*Management concerns:* Wetness and flooding

Woodland*Suitability:* Poorly suited*Management concerns:* Wetness, flooding, low strength, and stickiness**Wildlife Habitat***Suitability for wetland wildlife:* Fair*Suitability for woodland wildlife:* Fair***Urban Use*****Septic tank absorption fields***Limitation rating:* Severe*Limitations:* Flooding, wetness, and slow percolation**Dwellings without basements***Limitation rating:* Severe*Limitations:* Flooding, wetness, and shrink-swell**Local roads and streets***Limitation rating:* Severe*Limitations:* Flooding, low strength, and shrink-swell**Lawns, landscaping, and golf fairways***Limitation rating:* Severe*Limitations:* Flooding, wetness, and too clayey***Recreational Use*****Camp and picnic areas***Limitation rating:* Severe*Limitations:* Flooding, wetness, slow percolation**Playgrounds***Limitation rating:* Severe*Limitations:* Flooding, too clayey, and wetness**Soils in Swamps**

The map units in this group consist of level, very poorly drained, mucky and clayey soils that are in swamps and flooded or ponded most of the time.

This group of map units makes up about 35.6 percent of the total area. Most areas of these soils are in native vegetation and are used as woodland, habitat for wetland wildlife, and for recreation.

5. Barbary

Level, very poorly drained soils that have a mucky surface layer and a clayey subsoil

Setting*Landform:* Backswamp*Landform position:* Low positions on backswamps adjacent to major water bodies and freshwater or intermediate marshes*Distinctive landform features:* Cypress and mixed cypress and hardwood swamps*Slope range:* 0 to 1 percent

Composition

Percent of the survey area: 30.6 percent

Barbary soils—99 percent

Minor soils—1 percent (Allemands, Carlin, Maurepas, and Schriever soils)

Typical Profile

Surface layer:

0 to 10 inches—dark brown muck

10 to 21 inches—dark gray clay

Substratum layer:

21 to 80 inches—gray and greenish gray clay

Soil Properties and Qualities

Depth class: Very deep

Drainage class: Very poorly drained

Water table: Apparent at +1 to 0 feet

Flooding: Frequent

Runoff: Negligible

Permeability class: Very slow to impermeable

Available water capacity: Very high

Natural soil fertility: Very high

Shrink-swell potential: Low while soil is continuously saturated; very high if the soil is drained

Subsidence: Medium

Slope: Level

Land Use

Dominant uses: Woodland

Other uses: Wetland wildlife habitat and extensive recreation, such as hunting and fishing

Cropland

Suitability: Not suited

Management concerns: Flooding, ponding, and low strength

Pasture and Hayland

Suitability: Not suited

Management concerns: Flooding, ponding, and low strength

Woodland

Suitability: Very poorly suited

Management concerns: Wetness, flooding, ponding, low strength, and stickiness

Wildlife Habitat

Suitability for wetland wildlife: Fair

Suitability for woodland wildlife: Very poor

Urban Use

Septic tank absorption fields

Limitation rating: Severe

Limitations: Flooding, wetness, ponding, slow percolation

Dwellings without basements

Limitation rating: Severe

Limitations: Flooding, low strength, wetness, ponding, and subsidence

Local roads and streets*Limitation rating:* Severe*Limitations:* Low strength, subsidence, wetness, ponding, and flooding**Lawns, landscaping, and golf fairways***Limitation rating:* Severe*Limitations:* Ponding, flooding, wetness, and excess humus***Recreational Use*****Camp and picnic areas***Limitation rating:* Severe*Limitations:* Flooding, ponding, slow percolation, excess humus, wetness, and too clayey**Playgrounds***Limitation Rating:* Severe*Limitations:* Too clayey, ponding, flooding, excess humus, wetness, and slow percolation**6. Maurepas***Level, very poorly drained soils that have a mucky organic layer and a mucky substratum****Setting****Landform:* Backswamp*Landform position:* Low positions on backswamps adjacent to major water bodies and freshwater or intermediate marshes*Distinctive landform features:* Sparse cypress and encroaching marsh grasses*Slope range:* 0 to 0.5 percent***Composition***

Percent of the survey area: 5 percent

Maurepas soils—99 percent

Minor soils—1 percent (Allemands, Barbary, Carlin, and Schriever soils)

Typical Profile*Organic layer:*

0 to 23 inches—dark brown and very dark grayish brown muck

23 to 64 inches—brown, dark brown, and very dark grayish brown muck

Substratum layer:

64 to 80 inches—dark gray mucky clay

Soil Properties and Qualities*Depth class:* Very deep*Drainage class:* Very poorly drained*Water table:* Apparent at +1 to 0 feet*Flooding:* Frequent*Runoff:* Negligible*Permeability class:* Organic layers—rapid; clayey layers—very slow*Available water capacity:* Moderate*Natural soil fertility:* Very high*Shrink-swell potential:* Low*Subsidence:* High*Slope:* Level

Land Use

Dominant uses: Woodland

Other uses: Wetland wildlife habitat and extensive recreation, such as hunting and fishing

Cropland

Suitability: Not suited

Management concerns: Flooding, ponding, and low strength

Pasture and Hayland

Suitability: Not suited

Management concerns: Flooding, ponding, and low strength

Woodland

Suitability: Very poorly suited

Management concerns: Wetness, flooding, ponding, low strength, and stickiness

Wildlife Habitat

Suitability for wetland wildlife: Fair

Suitability for woodland wildlife: Very poor

Urban Use

Septic tank absorption fields

Limitation rating: Severe

Limitations: Flooding, wetness, and ponding

Dwellings without basements

Limitation rating: Severe

Limitations: Flooding, low strength, wetness, ponding, and subsidence

Local roads and streets

Limitation rating: Severe

Limitations: Low strength, subsidence, wetness, ponding, and flooding

Lawns, landscaping, and golf fairways

Limitation rating: Severe

Limitations: Ponding, flooding, wetness, and excess humus

Recreational Use

Camp and picnic areas

Limitation rating: Severe

Limitations: Flooding, ponding, slow percolation, excess humus, wetness, and too clayey

Playgrounds

Limitation Rating: Severe

Limitations: Ponding, flooding, excess humus, wetness, and slow percolation

Soils in Marshes

The map units in this group consist of level, very poorly drained, mucky and clayey soils that are in marshes and flooded or ponded most of the time.

This group of map units makes up about 5 percent of the total area. Most areas of these soils are in native vegetation and are used for recreation and as habitat for wetland wildlife.

7. Kenner-Allemands-Carlin

Level, very poorly drained soils that have a mucky organic layer and a mucky or clayey underlying material

Setting

Landform: Freshwater marsh

Landform position: Freshwater areas on the landward side of the coastal marsh

Distinctive landform features: Ponded and flooded by freshwater most of the time

Slope range: 0 to 0.2 percent

Composition

Percent of the survey area: 5 percent

Kenner soils—72 percent

Allemands soils—16 percent

Carlin soils—10 percent

Minor soils—2 percent (Barbary and Maurepas soils)

Typical Profile

Kenner

Organic layer:

0 to 18 inches—very dark grayish brown muck

Substratum layer:

18 to 21 inches—gray clay

Organic layer:

21 to 37 inches—very dark grayish brown muck

37 to 49 inches—dark brown muck

Substratum layer:

49 to 53 inches—very dark gray clay

Organic layer:

53 to 70 inches—very dark grayish brown muck

Substratum layer:

70 to 84 inches—dark gray mucky clay

Allemands

Organic layer:

0 to 4 inches—brown and dark brown muck

Subsurface Layer:

4 to 32 inches—very dark gray muck

Substratum layer:

32 to 65 inches—gray very fluid clay

65 to 80 inches—dark gray very fine sandy loam

Carlin

Organic layer:

0 to 12 inches—brown muck; moderately alkaline

Water layer:

12 to 18 inches

Organic layer:

18 to 36 inches—very dark gray muck

Substratum layer:

36 to 86 inches—gray, dark gray, and dark greenish gray clay

Substratum layer:

86 to 91 inches—very dark grayish brown mucky clay

Soil Properties and Qualities

Kenner

Depth class: Very deep

Drainage class: Very poorly drained

Water table: Apparent at +1 to 0 feet

Flooding: Very frequent

Runoff: Negligible

Permeability class: Organic layers—rapid; clayey layers—impermeable

Available water capacity: Very high

Natural soil fertility: Very high

Shrink-swell potential: Low

Subsidence: High

Slope: Level

Allemands

Depth class: Very deep

Drainage class: Very poorly drained

Water table: Apparent at +1 to 0 feet

Flooding: Very frequent

Runoff: Negligible

Permeability class: Organic layers—rapid; underlying clayey layers—impermeable

Available water capacity: Very high

Natural soil fertility: Very high

Shrink-swell potential: Low while soil is continuously saturated; very high in the underlying clayey layers if the soil is drained

Subsidence: High

Slope: Level

Carlin

Depth class: Very deep

Drainage class: Very poorly drained

Water table: Apparent at +1 to 0 feet

Flooding: Very frequent

Runoff: Negligible

Permeability class: Impermeable

Available water capacity: Very high

Natural soil fertility: High

Shrink-swell potential: Low

Subsidence: Medium

Slope: Level

Land Use

Dominant uses: Wetland wildlife habitat

Other uses: Extensive forms of recreation, such as hunting and fishing

Cropland

Suitability: Not suited

Management concerns: Wetness, flooding, low strength, and poor accessibility

Pasture and Hayland

Suitability: Not suited

Management concerns: Wetness, flooding, low strength, and poor accessibility

Woodland

Suitability: Not suited

Management concerns: Wetness, low strength, poor accessibility, and flooding

Wildlife Habitat

Suitability for wetland wildlife: Good

Suitability for woodland wildlife: Not suited

Urban Use

Septic tank absorption fields

Limitation rating: Severe

Limitations: Kenner—wetness, ponding, subsidence, flooding, and poor filter;
Allemands and Carlin—wetness, flooding, slow percolation, ponding, and
subsidence

Dwellings without basements

Limitation rating: Severe

Limitations: Wetness, low strength, flooding, subsidence, and ponding

Local roads and streets

Limitation rating: Severe

Limitations: Wetness, low strength, flooding, subsidence, and ponding

Lawns, landscaping, and golf fairways

Limitation rating: Severe

Limitations: Wetness, excess humus, flooding, and ponding

Recreational Use

Camp and picnic areas

Limitation rating: Severe

Limitations: Flooding, ponding, excess humus, slow percolation, and wetness

Playgrounds

Limitation Rating: Severe

Limitations: Ponding, flooding, excess humus, wetness, and slow percolation

Detailed Soil Map Units

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

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

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

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

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

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. The soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a

soil phase commonly indicates a feature that affects use or management. For example, Cancienne silty clay loam, 0 to 1 percent slopes, is a phase of the Cancienne series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Cancienne and Carville soils, gently undulating, frequently flooded, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Industrial waste pits is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils. LEP stands for linear extensibility percent in the shrink-swell potential description.

Soil Descriptions

Ba—Barbary soils, frequently flooded

Map Unit Composition

Major components:

Barbary and similar soils—89 to 98 percent

Contrasting inclusions:

Kenner soils—0 to 3 percent (on freshwater marsh positions and have organic layers more than 51 inches thick)

Maurepas soils—1 to 4 percent (more than 51 inches of organic materials at the surface)

Schriever soils—1 to 4 percent (on slightly higher positions on the backswamps and have a nonfluid subsoil that cracks in normal years)

Component Descriptions

MLRA: 131—Southern Mississippi Valley Alluvium

Landform: Swamp on delta plain

Hillslope position: None

Parent material: Fluid clayey alluvium

Slope: 0 to 1 percent

Surface fragments: None

Depth to restrictive feature: None

Drainage class: Very poorly drained

Slowest permeability: Impermeable (about 0.00 in/hr)

Available water capacity: Very high (about 12.9 inches)

Shrink-swell potential: Low (about 1.5 LEP)

Flooding hazard: Frequent

Ponding hazard: Frequent

Depth to seasonal water saturation: About +12 to 0 inches

Runoff class: Negligible

Non-irrigated land capability: 8w

Typical Profile

Organic layer:

0 to 10 inches—very dark grayish brown muck; slightly alkaline

Surface layer:

10 to 21 inches—dark gray clay; slightly alkaline

Substratum layer:

21 to 35 inches—gray clay; moderately alkaline

35 to 50 inches—greenish gray clay; moderately alkaline

50 to 80 inches—gray clay; moderately alkaline

Use and Management Considerations

Major land uses: Wildlife and recreation

Cropland

Suitability: Unsited

Management concerns:

- Flooding

Pastureland

Management concerns:

- Flooding

Woodland

Management concerns:

- Seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration
- Low strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment
- Flooding may result in damage to haul roads and increased maintenance costs
- Soil wetness may limit use by log trucks
- Flooding restricts the safe use of roads by log trucks
- Stickiness reduces the efficiency of mechanical planting equipment
- Stickiness restricts equipment use for site preparation to drier periods

Building Sites

Suitability: Unsited

Limitations:

- When drained, the organic layers subside; subsidence leads to differential rates of settlement which may cause foundations to break
- Frequent flooding greatly increases the risk of damage associated with floodwaters
- Water tends to pond, thus the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed
- High content of clay in the subsurface layer increases the difficulty of digging, filling, and soil compaction in shallow excavations

Septic Tank Absorption Fields

Suitability: Unsited

Limitations:

- Ponding
- Flooding greatly limits the absorption and proper treatment of the effluent from septic systems; rapidly moving floodwaters may damage some components of septic systems

Local Roads and Streets

Limitations:

- Ponding affects the ease of excavation and grading and limits the bearing capacity
- Subsidence of the organic material reduces the bearing capacity
- Special design of roads and bridges needed to prevent damage caused by flooding

CmA—Cancienne silt loam, 0 to 1 percent slopes

Map Unit Composition

Major components:

Cancienne and similar soils—88 to 100 percent

Contrasting inclusions:

Carville—0 to 12 percent (less clay in the subsoil)

Component Descriptions

MLRA: 131—Southern Mississippi Valley Alluvium

Landform: Natural levee on delta plain

Hillslope position: Convex linear

Parent material: Silty alluvium

Slope: 0 to 1 percent

Surface fragments: None

Depth to restrictive feature: None

Drainage class: Somewhat poorly drained

Slowest permeability: Moderately slow (about 0.20 in/hr)

Available water capacity: Very high (about 12.8 inches)

Shrink-swell potential: Moderate (about 4.5 LEP)

Flooding hazard: None

Ponding hazard: None

Depth to seasonal water saturation: About 18 to 48 inches

Runoff class: Low

Non-irrigated land capability: 2w

Typical Profile

Surface layer:

0 to 6 inches—dark grayish brown silt loam; moderately acid

Subsurface layer:

6 to 10 inches—dark grayish brown silt loam; strongly acid

10 to 16 inches—dark grayish brown silt loam; slightly acid

16 to 23 inches—dark grayish brown silty clay loam; slightly alkaline

Subsoil layer:

23 to 34 inches—grayish brown silt loam; moderately alkaline

34 to 42 inches—grayish brown and olive yellow silt loam; moderately alkaline

42 to 55 inches—gray silty clay; moderately alkaline

55 to 67 inches—grayish brown silty clay loam; moderately alkaline

67 to 80 inches—grayish brown silt loam; moderately alkaline

Use and Management Considerations

Major land uses: Cropland, residential, and industrial

Cropland

Suitability: Well suited

Management concerns:

- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination
- Controlling traffic can minimize soil compaction
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration

Pastureland*Management concerns:*

- Excess water should be removed or grass or legume species that are adapted to wet soil conditions should be planted
- Restricting grazing during wet periods can minimize soil compaction

Woodland*Management concerns:*

- Low strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment

Building Sites*Suitability:* Moderately suited*Limitations:*

- Seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance
- Structures may need special design to avoid damage from wetness
- High content of clay in the subsurface layer increases the difficulty of digging, filling, and soil compaction in shallow excavations

Septic Tank Absorption Fields*Suitability:* Poorly suited*Limitations:*

- Restricted permeability limits the absorption and proper treatment of the effluent from septic systems
- Seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems; costly measures may be needed to lower the water table in the area of the absorption field

Local Roads and Streets*Limitations:*

- Shrinking and swelling

CnA—Cancienne silty clay loam, 0 to 1 percent slopes**Map Unit Composition***Major components:*

Cancienne and similar soils—52 to 88 percent

Contrasting inclusions:

Gramercy soils—12 to 48 percent (on lower positions on the natural levee and have a clayey subsoil)

Component Descriptions*MLRA:* 131—Southern Mississippi Valley Alluvium*Landform:* Natural levee on delta plain*Hillslope position:* Convex linear*Parent material:* Silty alluvium

Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately slow (about 0.20 in/hr)
Available water capacity: Very high (about 12.5 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: About 18 to 48 inches
Runoff class: Low
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
 0 to 4 inches—dark grayish brown silty clay loam; neutral
Subsurface layer:
 4 to 7 inches—dark grayish brown silty clay loam; neutral
Subsoil layer:
 7 to 12 inches—grayish brown silty clay loam; neutral
 12 to 19 inches—dark grayish brown silt loam; neutral
 19 to 43 inches—grayish brown and dark grayish brown silty clay loam; neutral
 43 to 57 inches—dark grayish brown silty clay; slightly alkaline
 57 to 65 inches—very dark grayish brown silty clay loam; slightly alkaline
 65 to 75 inches—grayish brown silty clay loam; slightly alkaline

Use and Management Considerations

Major land uses: Cropland, residential, and industrial

Cropland

Suitability: Well suited

Management concerns:

- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination
- Clods may form if tilled when wet
- Controlling traffic can minimize soil compaction
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration

Pastureland

Management concerns:

- Excess water should be removed or grass or legume species that are adapted to wet soil conditions should be planted
- Restricting grazing during wet periods can minimize soil compaction

Woodland

Management concerns:

- Low strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment

Building Sites

Suitability: Moderately suited

Limitations:

- Seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance

- Special design needed to avoid damage from wetness
- Moderate shrinking and swelling may crack foundations and basement walls
- High content of clay in the subsurface layer increases the difficulty of digging, filling, and soil compaction in shallow excavations

Septic Tank Absorption Fields

Suitability: Poorly suited

Limitations:

- Restricted permeability limits the absorption and proper treatment of the effluent from septic systems
- Seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems; costly measures may be needed to lower the water table in the area of the absorption field

Local Roads and Streets

Limitations:

- Shrinking and swelling

CT—Cancienne and Carville soils, gently undulating, frequently flooded

Map Unit Composition

Major components:

Cancienne and similar soils—38 to 75 percent

Carville and similar soils—25 to 62 percent

Component Descriptions

Cancienne

MLRA: 131—Southern Mississippi Valley Alluvium

Landform: Swale on natural levee on delta plain

Hillslope position: Concave linear

Parent material: Silty alluvium

Slope: 0 to 1 percent

Surface fragments: None

Depth to restrictive feature: None

Drainage class: Somewhat poorly drained

Slowest permeability: Moderately slow (about 0.20 in/hr)

Available water capacity: Very high (about 12.6 inches)

Shrink-swell potential: Moderate (about 4.5 LEP)

Flooding hazard: Frequent

Ponding hazard: None

Depth to seasonal water saturation: About 18 to 48 inches

Runoff class: Low

Non-irrigated land capability: 5w

Carville

MLRA: 131—Southern Mississippi Valley Alluvium

Landform: Ridge on natural levee on delta plain

Hillslope position: Convex linear

Parent material: Silty alluvium

Slope: 0 to 3 percent

Surface fragments: None

Depth to restrictive feature: None

Drainage class: Somewhat poorly drained

Slowest permeability: Moderate (about 0.60 in/hr)
Available water capacity: Very high (about 13.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: Frequent
Ponding hazard: None
Depth to seasonal water saturation: About 12 to 30 inches
Runoff class: Low
Non-irrigated land capability: 5w

Typical Profile

Cancienne

Surface layer:

0 to 2 inches—dark gray silty clay loam; slightly alkaline
 2 to 6 inches—dark grayish brown silt loam; slightly alkaline

Subsoil layer:

6 to 12 inches—dark gray silty clay loam
 12 to 18 inches—pale brown silt loam
 18 to 32 inches—dark grayish brown very fine sandy loam
 32 to 41 inches—dark gray silty clay loam
 41 to 49 inches—very dark grayish brown silty clay loam

Substratum layer:

49 to 63 inches—dark grayish brown stratified very fine sandy loam to silt loam
 63 to 80 inches—dark gray stratified very fine sandy loam, silt loam, and silty clay loam

Carville

Surface layer:

0 to 7 inches—dark grayish brown silt loam

Subsurface layer:

7 to 14 inches—grayish brown very fine sandy loam

Subsoil layer:

14 to 23 inches—grayish brown very fine sandy loam

Substratum layer:

23 to 25 inches—brown stratified very fine sandy loam
 25 to 27 inches—dark grayish brown silt loam
 27 to 37 inches—brown stratified very fine sandy loam
 37 to 50 inches—grayish brown stratified very fine sandy loam
 50 to 80 inches—dark grayish brown stratified very fine sandy loam

Use and Management Considerations

Major land uses: Wildlife and recreation

Cropland

Suitability: Unsited

Management concerns:

- Frequent flooding

Pastureland

Management concerns:

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal
- Excess water should be removed or grass or legume species that are adapted to wet soil conditions should be planted
- Restricting grazing during wet periods can minimize soil compaction

Woodland*Management concerns:*

- Standing water can inhibit the growth of some species of seedlings by restricting root respiration
- Low strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment
- Flooding may result in damage to haul roads and increased maintenance costs
- Flooding restricts the safe use of roads by log trucks

Building Sites*Suitability:* Unsited*Limitations:*

- Frequent flooding greatly increases the risk of damage associated with floodwaters
- High content of clay in the subsurface layer increases the difficulty of digging, filling, and soil compaction in shallow excavations

Septic Tank Absorption Fields*Suitability:* Unsited*Limitations:*

- Flooding greatly limits the absorption and proper treatment of the effluent from septic systems; rapidly moving floodwaters may damage some components of septic systems

Local Roads and Streets*Limitations:*

- Special design of roads and bridges needed to prevent damage caused by flooding

CU—Allemands and Carlin mucks, very frequently flooded

Map Unit Composition

Major components:

Allemands and similar soils—45 to 75 percent

Carlin and similar soils—25 to 55 percent

Component Descriptions

Allemands

MLRA: 151—Gulf Coast Marsh

Landform: Marsh on delta plain

Hillslope position: None

Parent material: Herbaceous organic material over fluid clayey alluvium

Slope: 0 to 0.02 percent

Surface fragments: None

Depth to restrictive feature: None

Drainage class: Very poorly drained

Slowest permeability: Impermeable (about 0.00 in/hr)

Available water capacity: Very high (about 15.6 inches)

Shrink-swell potential: Low (about 1.5 LEP)

Flooding hazard: Very frequent

Ponding hazard: Frequent

Depth to seasonal water saturation: About +12 to 0 inches

Runoff class: Negligible

Non-irrigated land capability: 8w

Carlin

MLRA: 151—Gulf Coast Marsh

Landform: Marsh on delta plain

Hillslope position: None

Parent material: Thick, undecomposed herbaceous organic material over very fluid clayey alluvium

Slope: 0 percent

Surface fragments: None

Depth to restrictive feature: None

Drainage class: Very poorly drained

Slowest permeability: Impermeable (about 0.00 in/hr)

Available water capacity: Very high (about 14.2 inches)

Shrink-swell potential: Low (about 1.5 LEP)

Flooding hazard: Very frequent

Ponding hazard: Frequent

Depth to seasonal water saturation: About +12 to 0 inches

Runoff class: Negligible

Non-irrigated land capability: 8w

Typical Profile**Allemands**

Organic layer:

0 to 2 inches—brown muck; moderately alkaline

2 to 4 inches—dark grayish brown muck; moderately alkaline

4 to 32 inches—very dark gray muck; moderately alkaline

Substratum layer:

32 to 65 inches—gray clay; moderately alkaline

65 to 80 inches—dark gray very fine sandy loam; moderately alkaline

Carlin

Organic layer:

0 to 12 inches—brown muck; moderately alkaline

Water layer:

12 to 18 inches

Organic layer:

18 to 36 inches—very dark gray muck; moderately alkaline

Substratum layer:

36 to 44 inches—gray clay; moderately alkaline

44 to 56 inches—dark gray clay; moderately alkaline

56 to 86 inches—dark greenish gray clay; moderately alkaline

86 to 91 inches—very dark grayish brown mucky clay; moderately alkaline

Use and Management Considerations

Major land uses: Wildlife and recreation

Cropland

Suitability: Unsited

Management concerns:

- Flooding

Pastureland

Management concerns:

- Flooding

Woodland*Management concerns:*

- Seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration
- Low pH may cause a nutrient imbalance in seedlings
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration
- Low strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment
- Flooding may result in damage to haul roads and increased maintenance costs
- Soil wetness may limit use by log trucks
- Flooding restricts the safe use of roads by log trucks

Building Sites*Suitability:* Unsited*Limitations:*

- When drained, the organic layers subside; subsidence leads to differential rates of settlement which may cause foundations to break
- Water tends to pond, thus the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed
- High content of clay in the subsurface layer increases the difficulty of digging, filling, and soil compaction in shallow excavations

Septic Tank Absorption Fields*Suitability:* Unsited*Limitations:*

- Ponding
- Flooding greatly limits the absorption and proper treatment of the effluent from septic systems; rapidly moving floodwaters may damage some components of septic systems

Local Roads and Streets*Limitations:*

- Ponding affects the ease of excavation and grading and limits the bearing capacity
- Subsidence of the organic material reduces the bearing capacity
- Special design of roads and bridges needed to prevent damage caused by flooding

CvA—Carville silt loam, undulating**Map Unit Composition***Major components:*

Carville and similar soils—100 percent

Component Descriptions

MLRA: 131—Southern Mississippi Valley Alluvium

Landform: Natural levee on delta plain

Hillslope position: Convex linear

Parent material: Silty alluvium

Slope: 0 to 5 percent

Surface fragments: None

Depth to restrictive feature: None

Drainage class: Somewhat poorly drained

Slowest permeability: Moderate (about 0.60 in/hr)

Available water capacity: Very high (about 13.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: About 12 to 30 inches
Runoff class: Low
Non-irrigated land capability: 2w

Typical Profile

Surface layer:

0 to 6 inches—dark grayish brown silt loam; moderately alkaline

Subsurface layer:

6 to 13 inches—grayish brown silt loam; strongly alkaline

Substratum layer:

13 to 19 inches—grayish brown and brown stratified silt loam; moderately alkaline

19 to 28 inches—brown silt loam; moderately alkaline

28 to 33 inches—grayish brown silt loam; moderately alkaline

33 to 39 inches—dark yellowish brown silt loam; moderately alkaline

39 to 45 inches—grayish brown silt loam; moderately alkaline

45 to 75 inches—dark greenish gray silt loam; moderately alkaline

Use and Management Considerations

Major land uses: Cropland, residential, and industrial

Cropland

Suitability: Well suited

Management concerns:

- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination
- Controlling traffic can minimize soil compaction
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration
- Subsurface drainage helps to lower the seasonal high water table

Pastureland

Management concerns:

- Excess water should be removed or grass or legume species that are adapted to wet soil conditions should be planted
- Restricting grazing during wet periods can minimize soil compaction

Woodland

Management concerns:

- Low strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment
- Soil wetness may limit use by log trucks

Building Sites

Suitability: Poorly suited

Limitations:

- Seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance
- Special design needed to avoid damage from wetness

Septic Tank Absorption Fields

Suitability: Poorly suited

Limitations:

- Seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems; costly measures may be needed to lower the water table in the area of the absorption field
- Moderate permeability within the depth of the drain field somewhat limits the absorption of the effluent from septic systems; an oversize drain field may be needed

Local Roads and Streets*Limitations:*

- Seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity

GrA—Gramercy silty clay, 0 to 1 percent slopes**Map Unit Composition***Major components:*

Gramercy and similar soils—88 to 96 percent

Contrasting inclusions:

Cancienne soils—4 to 12 percent (on higher positions on the natural levee and loamy throughout the subsoil)

Component Descriptions

MLRA: 131—Southern Mississippi Valley Alluvium

Landform: Mid to lower position on natural levee on delta plain

Hillslope position: Linear-linear

Parent material: Clayey alluvium

Slope: 0 to 1 percent

Surface fragments: None

Depth to restrictive feature: None

Drainage class: Poorly drained

Slowest permeability: Impermeable (about 0.00 in/hr)

Available water capacity: High (about 10.5 inches)

Shrink-swell potential: Very high (about 17.0 LEP)

Flooding hazard: None

Ponding hazard: None

Depth to seasonal water saturation: About 0 to 24 inches

Runoff class: High

Non-irrigated land capability: 3w

Typical Profile*Surface layer:*

0 to 6 inches—very dark gray silty clay; slightly acid

Subsurface layer:

6 to 11 inches—very dark gray silty clay; slightly alkaline

Subsoil layer:

11 to 36 inches—gray silty clay; slightly alkaline

36 to 42 inches—gray clay; slightly alkaline

42 to 48 inches—gray silty clay; neutral

Buried surface layer:

48 to 55 inches—dark gray silty clay loam; slightly alkaline

Buried subsoil layer:

55 to 63 inches—gray silty clay loam; neutral

63 to 80 inches—gray silty clay; neutral

Use and Management Considerations

Major land uses: Cropland and residential

Cropland

Suitability: Well suited (fig. 4)

Management concerns:

- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination
- Clods may form if tilled when wet
- Controlling traffic can minimize soil compaction
- Rooting depth of crops may be restricted by the high clay content
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration
- Movement of water into subsurface drains is restricted; drainage guides can be used to determine tile spacing requirements
- Subsurface drainage helps to lower the seasonal high water table
- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains

Pastureland

Management concerns:

- Excess water should be removed or grass or legume species that are adapted to wet soil conditions should be planted
- Restricting grazing during wet periods can minimize soil compaction



Figure 4.—Sugarcane in an area of precision leveled Gramercy silty clay, 0 to 1 percent slopes.

Woodland*Management concerns:*

- Seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration
- Low strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment
- Soil wetness may limit use by log trucks
- Stickiness reduces the efficiency of mechanical planting equipment
- Stickiness restricts equipment use for site preparation to drier periods

Building Sites*Suitability:* Unsited*Limitations:*

- Under unusual weather conditions, subject to rare flooding, which may result in physical damage and costly repairs to buildings
- Special design of some structures, such as farm outbuildings, may be needed to prevent damage caused by flooding
- High content of clay in the subsurface layer increases the difficulty of digging, filling, and soil compaction in shallow excavations

Septic Tank Absorption Fields*Suitability:* Poorly suited*Limitations:*

- Seasonal high water table
- Flooding on rare occasions will limit the absorption and proper treatment of the effluent from septic systems; rapidly moving floodwaters may damage some components of septic systems

Local Roads and Streets*Limitations:*

- Shrinking and swelling
- Seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity
- Special design of roads and bridges needed to prevent damage caused by flooding

IP—Industrial waste pits

Most areas of this map unit are mounds of industrial waste with noted pits on top of the mounds that hold water. Areas are as large as 600 to 1,000 acres. Use and management is very limited.

Ke—Kenner muck, very frequently flooded**Map Unit Composition***Major components:*

Kenner and similar soils—100 percent

Component Descriptions

MLRA: 151—Gulf Coast Marsh

Landform: Marsh on delta plain

Hillslope position: None

Parent material: Herbaceous organic material over fluid clayey alluvium

Slope: 0 percent

Surface fragments: None

Depth to restrictive feature: None
Drainage class: Very poorly drained
Slowest permeability: Impermeable (about 0.00 in/hr)
Available water capacity: Very high (about 13.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: Very Frequent
Ponding hazard: Frequent
Depth to seasonal water saturation: About +12 to 0 inches
Runoff class: Negligible
Non-irrigated land capability: 8w

Typical Profile

Organic layer:
 0 to 18 inches—very dark grayish brown muck; moderately alkaline
Substratum layer:
 18 to 21 inches—gray clay; moderately alkaline
Organic layer:
 21 to 37 inches—very dark grayish brown muck; moderately alkaline
 37 to 49 inches—dark brown muck; moderately alkaline
Substratum layer:
 49 to 53 inches—very dark gray clay; moderately alkaline
Organic layer:
 53 to 70 inches—very dark grayish brown muck; moderately alkaline
Substratum layer:
 70 to 84 inches—dark gray mucky clay; moderately alkaline

Use and Management Considerations

Major land uses: Wildlife and recreation

Cropland

Suitability: Unsited
Management concerns:

- Flooding

Pastureland

Management concerns:

- Flooding

Woodland

Management concerns:

- Seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration
- Low pH may cause a nutrient imbalance in seedlings
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration
- Low strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment
- Flooding may result in damage to haul roads and increased maintenance costs
- Soil wetness may limit use by log trucks
- Flooding restricts the safe use of roads by log trucks

Building Sites

Suitability: Unsited
Limitations:

- When drained, the organic layers subside; subsidence leads to differential rates of settlement which may cause foundations to break

- Water tends to pond, thus the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed
- High content of clay in the subsurface layer increases the difficulty of digging, filling, and soil compaction in shallow excavations

Septic Tank Absorption Fields

Suitability: Unsited

Limitations:

- Ponding
- Flooding greatly limits the absorption and proper treatment of the effluent from septic systems; rapidly moving floodwaters may damage some components of septic systems

Local Roads and Streets

Limitations:

- Ponding affects the ease of excavation and grading and limits the bearing capacity
- Subsidence of the organic material reduces the bearing capacity
- Special design of roads and bridges needed to prevent damage caused by flooding

LP—Levees-Borrow pits complex, 0 to 25 percent slopes

Map Unit Composition

Major components:

Levees and similar soils—60 percent

Borrow pits and similar soils—40 percent

Component Descriptions

Levees

MLRA: 131—Southern Mississippi Valley Alluvium

Landform: Artificial levee on alluvial plain

Hillslope position: None

Parent material: Spoil from pits

Slope: 0 to 25 percent

Surface fragments: None

Depth to restrictive feature: None

Drainage class: Somewhat poorly drained

Slowest permeability: Unspecified

Available water capacity: Very low (about 0.0 inches)

Shrink-swell potential: Unspecified

Flooding hazard: Floods on unprotected side of levee

Ponding hazard: None

Depth to seasonal water saturation: Greater than 6 feet

Runoff class: High

Non-irrigated land capability: 6e

Borrow pits

MLRA: 131—Southern Mississippi Valley Alluvium

Landform: Depressional cuts on alluvial plain

Hillslope position: None

Parent material: Mississippi alluvium, surface removed

Slope: 0 to 1 percent

Surface fragments: None

Depth to restrictive feature: None

Drainage class: Very poorly drained
Slowest permeability: Unspecified
Available water capacity: Very low (about 0.0 inches)
Shrink-swell potential: Unspecified
Flooding hazard: Floods on unprotected side of levee
Ponding hazard: Ponds on unprotected side of levee
Depth to seasonal water saturation: About 0 to 12 inches
Runoff class: Negligible
Non-irrigated land capability: 7w

Use and Management Considerations

Major land uses: Pasture and hayland

Cropland

Suitability: Not allowed on levees

Pastureland

Management concerns:

- Avoiding overgrazing can reduce the hazard of erosion
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion
- Erosion control needed when pastures are renovated
- Plants may suffer moisture stress during drier summer months because of the limited available water capacity
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture
- Poor summer pasture
- Slope increases the hazard of erosion if the soil is disturbed
- Limited available water capacity inhibits root development and increases the seedling mortality rate
- Low pH may cause a nutrient imbalance in seedlings
- Slope creates unsafe operating conditions and reduces the operating efficiency of log trucks
- Slope may restrict the use of some mechanical planting equipment
- Borrow pits—soil wetness may limit use by log trucks
- Borrow pits—seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration

Building Sites

Suitability: Not allowed on levees

Limitations:

- Under unusual weather conditions, subject to rare flooding that may result in physical damage and costly repairs to buildings
- Borrow pits—special design of some structures, such as farm outbuildings, may be needed to prevent damage caused by flooding and ponding

Septic Tank Absorption Fields

Suitability: Not allowed on levees

Limitations:

- Seasonal high water table
- Flooding on rare occasions will limit the absorption and proper treatment of the effluent from septic systems; rapidly moving floodwaters may damage some components of septic systems

Local Roads and Streets

Limitations:

- Slope

Ma—Maurepas muck, frequently flooded

Map Unit Composition

Major components:

Maurepas and similar soils—90 percent

Contrasting inclusions:

Barbary soils—0 to 10 percent

Component Descriptions

MLRA: 131—Southern Mississippi Valley Alluvium

Landform: Swamp on delta plain

Hillslope position: Concave linear

Parent material: Herbaceous organic material

Slope: 0 to 0.5 percent

Surface fragments: None

Depth to restrictive feature: None

Drainage class: Very poorly drained

Slowest permeability: Impermeable (about 0.00 in/hr)

Available water capacity: Very high (about 20.9 inches)

Shrink-swell potential: Low (about 1.5 LEP)

Flooding hazard: Frequent

Ponding hazard: Frequent

Depth to seasonal water saturation: 0 inches

Runoff class: Negligible

Non-irrigated land capability: 8w

Typical Profile

Organic layer:

0 to 23 inches—dark brown and very dark grayish brown muck; moderately alkaline

23 to 64 inches—brown and very dark grayish brown muck; moderately alkaline

Substratum layer:

64 to 80 inches—dark gray mucky clay; moderately alkaline

Use and Management Considerations

Major land uses: Wildlife and recreation

Cropland

Suitability: Unsited

Management concerns:

- Flooding

Pastureland

Management concerns:

- Flooding

Woodland

Management concerns:

- Seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration
- Low pH may cause a nutrient imbalance in seedlings
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration
- Low strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment

- Flooding may result in damage to haul roads and increased maintenance costs
- Soil wetness may limit use by log trucks
- Flooding restricts the safe use of roads by log trucks

Building Sites

Suitability: Unsited

Limitations:

- When drained, the organic layers subside; subsidence leads to differential rates of settlement which may cause foundations to break
- Frequent flooding greatly increases the risk of damage associated with floodwaters
- Water tends to pond, thus the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed

Septic Tank Absorption Fields

Suitability: Unsited

Limitations:

- Ponding
- Flooding greatly limits the absorption and proper treatment of the effluent from septic systems; rapidly moving floodwaters may damage some components of septic systems

Local Roads and Streets

Limitations:

- Ponding affects the ease of excavation and grading and limits the bearing capacity
- Subsidence of the organic material reduces the bearing capacity
- Special design of roads and bridges needed to prevent damage caused by flooding

SkA—Schriever clay, 0 to 1 percent slopes

Map Unit Composition

Major components:

Schriever and similar soils—92 to 100 percent

Contrasting inclusions:

Gramercy soils—0 to 8 percent (on slightly higher positions and not as clayey)

Component Descriptions

MLRA: 131—Southern Mississippi Valley Alluvium

Landform: Backswamp on delta plain

Hillslope position: Linear-linear

Parent material: Clayey alluvium

Slope: 0 to 1 percent

Surface fragments: None

Depth to restrictive feature: None

Drainage class: Poorly drained

Slowest permeability: Impermeable (about 0.00 in/hr)

Available water capacity: Moderate (about 7.1 inches)

Shrink-swell potential: Very high (about 17.0 LEP)

Flooding hazard: Rare

Ponding hazard: None

Depth to seasonal water saturation: About 0 to 24 inches

Runoff class: High

Non-irrigated land capability: 3w

Typical Profile

Surface layer:

0 to 8 inches—dark grayish brown clay; neutral

Subsoil layer:

8 to 13 inches—dark gray clay; slightly alkaline

13 to 24 inches—gray clay; slightly alkaline

24 to 39 inches—gray clay; neutral

39 to 47 inches—gray clay; slightly alkaline

47 to 80 inches—gray clay; neutral

Use and Management Considerations

Major land uses: Cropland and residential

Cropland

Suitability: Moderately well suited

Management concerns:

- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination
- Clods may form if tilled when wet
- Controlling traffic can minimize soil compaction
- Rooting depth of crops may be restricted by the very high clay content
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration
- Movement of water into subsurface drains is restricted; drainage guides can be used to determine tile spacing requirements
- Subsurface drainage helps to lower the seasonal high water table
- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains

Pastureland

Management concerns:

- Excess water should be removed or grass or legume species that are adapted to wet soil conditions should be planted
- Restricting grazing during wet periods can minimize soil compaction

Woodland

Management concerns:

- Seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration
- Low strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment
- Content of clay causes stickiness when wet, which increases the cost of constructing haul roads and log landings
- Soil wetness may limit use by log trucks
- Stickiness reduces the efficiency of mechanical planting equipment
- Stickiness restricts equipment use for site preparation to drier periods

Building Sites

Suitability: Unsited

Limitations:

- Under unusual weather conditions, subject to rare flooding, which may result in physical damage and costly repairs to buildings
- Special design of some structures, such as farm outbuildings, may be needed to prevent damage caused by flooding

- High content of clay in the subsurface layer increases the difficulty of digging, filling, and soil compaction in shallow excavations

Septic Tank Absorption Fields

Suitability: Poorly suited

Limitations:

- Seasonal high water table
- Flooding on rare occasions will limit the absorption and proper treatment of the effluent from septic systems; rapidly moving floodwaters may damage some components of septic systems

Local Roads and Streets

Limitations:

- Shrinking and swelling
- Seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity
- Special design of roads and bridges needed to prevent damage caused by flooding

Sm—Schriever clay, frequently flooded

Map Unit Composition

Major components:

Schriever and similar soils—100 percent

Component Descriptions

MLRA: 131—Southern Mississippi Valley Alluvium

Landform: Backswamp on delta plain

Hillslope position: None

Parent material: Clayey alluvium

Slope: 0 to 1 percent

Surface fragments: None

Depth to restrictive feature: None

Drainage class: Very poorly drained

Slowest permeability: Impermeable (about 0.00 in/hr)

Available water capacity: Moderate (about 7.3 inches)

Shrink-swell potential: Very high (about 17.0 LEP)

Flooding hazard: Frequent

Ponding hazard: None

Depth to seasonal water saturation: About 0 to 24 inches

Runoff class: Negligible

Non-irrigated land capability: 5w

Typical Profile

Surface layer:

0 to 4 inches—dark gray clay; slightly acid

Subsoil layer:

4 to 23 inches—gray clay; neutral

23 to 80 inches—gray clay; slightly alkaline

Use and Management Considerations

Major land uses: Woodland, wildlife, and recreation

Cropland

Suitability: Unsited

Management concerns:

- Flooding

Pastureland*Management concerns:*

- Flooding

Woodland*Management concerns:*

- Seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration
- Low strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment
- Flooding may result in damage to haul roads and increased maintenance costs
- Content of clay causes stickiness when wet, which increases the cost of constructing haul roads and log landings
- Soil wetness may limit use by log trucks
- Flooding restricts the safe use of roads by log trucks
- Stickiness reduces the efficiency of mechanical planting equipment
- Stickiness restricts equipment use for site preparation to drier periods

Building Sites*Suitability:* Unsited*Limitations:*

- Frequent flooding greatly increases the risk of damage associated with floodwaters
- High content of clay in the subsurface layer increases the difficulty of digging, filling, and soil compaction in shallow excavations

Septic Tank Absorption Fields*Suitability:* Unsited*Limitations:*

- Seasonal high water table
- Flooding greatly limits the absorption and proper treatment of the effluent from septic systems; rapidly moving floodwaters may damage some components of septic systems

Local Roads and Streets*Limitations:*

- Shrinking and swelling
- Seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity
- Special design of roads and bridges needed to prevent damage caused by flooding

UL—Urban land**Map Unit Composition***Major components:*

Urban land—100 percent

Component Descriptions

MLRA: 131A—Southern Mississippi River Alluvium

Landform: Natural levee on delta plain

Landform position: Convex areas

Parent material: Unspecified
Slope: Unspecified
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Unspecified
Slowest saturated hydraulic conductivity: Unspecified
Available water capacity: Unspecified
Shrink-swell potential: Unspecified
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Unspecified
Runoff class: Unspecified
Non-irrigated land capability: Unspecified

Use and Management Considerations

Major land uses: Urban, industry, and residential

Cropland

Suitability: Unsited

Pastureland

Suitability: Unsited

Woodland

Suitability: Unsited

Building Sites

Suitability: Well suited

Septic Tank Absorption Fields

Suitability: Variable

Limitations:

- Unpredictable differences in fill and underlying soils

Local Roads and Streets

Suitability: Well suited

W—Water

Map Unit Composition

Major components:
 Water—100 percent

Prime Farmland

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

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 33,240 acres, or nearly 15 percent of the survey area, would meet the requirements for prime farmland. Most areas of the parish are prime farmland, except those areas subject to frequent flooding, mainly behind the Mississippi River protection levee.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed below. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

The soils identified as prime farmland in St. John the Baptist Parish are:

CmA	Cancienne silt loam, 0 to 1 percent slopes
CnA	Cancienne silty clay loam, 0 to 1 percent slopes
CvA	Carville silt loam, undulating
GrA	Gramercy silty clay, 0 to 1 percent slopes
SkA	Schriever clay, 0 to 1 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 rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

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

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

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

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical. *Not rated* indicates that data were not recorded or estimated.

Rating Class Terms

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

Numerical Ratings

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

Crops and Pasture

Larry Trahan (retired), Conservation Agronomist, Natural Resources Conservation Service, helped to 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 "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 12,335 acres in St. John the Baptist Parish was used for crops, pasture, or range in 2002. About 11,000 acres was used for crops, mainly sugarcane, and about 1,335 acres was used for pasture or range.

This section presents the general principles of management that can be widely applied to the soils in St. John the Baptist Parish.

Crops. Crops suitability and management needs are based on soil characteristics, such as fertility level, erodibility, organic matter content, availability of water for plants, drainage, and flooding hazard. Each farm has a unique soil pattern; therefore, each has unique management problems. Some principles of farm management, however, apply to specific soils and certain crops.

Pasture and Hayland. Perennial grasses or legumes, or mixtures of these, are grown for pasture and hay. The mixtures generally consist of either a summer or a winter perennial grass and a suitable legume. In addition, many farmers seed small grain or ryegrass in the fall for winter and spring forage. Excess grass in the summer is harvested as hay for the winter. Common and improved bermudagrass and Pensacola bahiagrass are the summer perennials most commonly grown. Improved bermudagrass and Pensacola bahiagrass produce good quality forage. Tall fescue, the chief winter perennial grass, grows well only on soils that have favorable moisture content. All of these grasses respond well to fertilizer, particularly nitrogen. White clover is the most commonly grown legume, which responds well to lime, particularly where grown on acid soils. Proper grazing, brush and weed control, fertilizer, lime, and pasture renovation are essential for high quality forage, stand survival, and erosion control.

Fertilization and liming. The soils in St. John the Baptist Parish range from extremely acid to moderately alkaline in the surface layer. Most soils that are used for crops are moderately low in organic matter content and in available nitrogen. Areas of drained marshes contain highly oxidized organic materials and have surface layers that range to extremely acid. Most of these marsh soils were once used for row crops but now are in pasture. Soils used for cultivated crops generally do not need lime. The amount of fertilizer needed depends on the crop to be grown, on past cropping history, the level of yield desired, and the kind of soil. Amounts should be determined

on the basis of soil test results. Information and instructions on collecting and testing soil samples can be obtained from the Cooperative Extension Service.

Organic matter content. Organic matter is an important source of nitrogen and micronutrients required for plant growth. It also increases the rate of water intake, reduces surface crusting, and improves soil tilth. Most of the soils in St. John the Baptist Parish that are used for crops are moderately low in organic matter content. The level of organic matter can be maintained by growing crops that produce an extensive root system and an abundance of foliage by leaving plant residue on the surface, by growing perennial grasses and legumes in rotation with other crops, and by adding barnyard manure. In St. John the Baptist Parish, residue from sugarcane helps to maintain the organic matter content of the soils.

Soil tillage. The major purpose of soil tillage is seedbed preparation and to control weeds. Excessive tillage destroys soil structure. The clayey soils in the parish become cloddy if cultivated when they are too wet. A compacted layer, generally known as a traffic pan or plow pan, sometimes develops just below the plow layer in loamy soils. This condition can be avoided by not plowing when the soil is wet, by varying the depth of plowing, or by breaking the compacted layer by subsoiling or chiseling. A plow pan is undesirable because it limits rooting depth and the amount of moisture available to the crops. Tillage implements that stir the surface and leave crop residue in place protect the soil from beating rains, thereby helping to control erosion, reduce runoff, increase infiltration, reduce surface crusting, and insure good seed germination.

Drainage. Drainage is a major consideration in managing crops and pasture. Management of drainage in conformance with regulations influencing wetlands may require special permits and extra planning. Most of the soils in St. John the Baptist Parish, such as the Cancienne, Gramercy, and Schriever soils, need surface drainage to make them more suitable for crops. Soils are drained by a gravity drainage system consisting of a series of main laterals and smaller drains that branch out from them. The success of the systems depends on the availability of adequate outlets. Drainage is also improved by land grading, water leveling, or precisely leveling the fields to a uniform grade. Land grading improves surface drainage, eliminates cross ditches, and creates larger and more uniformly shaped fields that are more suited to the use of modern, multi-row farm machinery. However, deep cutting of soils that have unfavorable subsoil characteristics should be avoided. The Mississippi River levee system protects most cropland and pastureland from flooding. Nevertheless, some soils at the lower elevations are subject to flooding from runoff from higher areas. Flooding in many of these areas can be controlled only by constructing a ring levee system and using pumps to remove excess water.

Water for plant growth. The available water capacity of the soils in St. John the Baptist Parish range from moderate to high, but in some years sufficient water is not available at the critical time for optimum growth unless irrigation is used. Rainfall is heavy in winter and spring. Sufficient rain generally falls in summer and autumn in most years; however, during dry periods in summer and autumn, most of the soils do not supply sufficient water for plants.

Cropping sequence. A good cropping sequence includes a legume for nitrogen, a cultivated crop to aid in weed control, a deep-rooted crop to utilize substratum fertility and maintain substratum permeability, and a close-growing crop to help maintain organic matter content. The sequence of crops should keep the soil covered as much of the year as possible. In St. John the Baptist Parish, three crops of sugarcane are generally obtained from each planting. After the third crop, the field is planted to soybeans, a cover crop, or more commonly is fallowed for a year. The organic matter content of the soil can be maintained at a desirable level under this system by properly utilizing the sugarcane residue. A suitable cropping sequence varies according to the needs of the farmer and characteristics of the soils. Livestock

producers, for example, generally use a cropping sequence that has a higher percentage of pasture and annual forage than the cropping sequence used on a cash-crop farm. Grass and legumes cover crops may be grown during fall and winter.

Control of erosion. Soil erosion generally is not a serious problem on most of the soils in St. John the Baptist Parish, mainly because most of the topography is level to nearly level. Nevertheless, sheet and rill erosion can be moderately severe in fallow-plowed fields, in newly constructed drainage ditches, and on ridges and mounds in undulating areas. Some gullies tend to form at outfalls into drainage areas. New drainage ditches should be seeded immediately after construction. Erosion is a hazard on some of the sloping soils left without plant cover for extended periods. If the surface layer is lost through erosion, most of the available plant nutrients and most of the organic matter are also lost. Soil erosion also results in sedimentation of drainage systems, and streams are polluted by sediments, nutrients, and pesticides. Cropping systems that maintain a plant cover on the soil for extended periods reduce soil erosion. Use of legume or grass cover crops reduces erosion, increases the content of organic matter and nitrogen in the soils, and improves tilth. The installation of pipe drop structures in drainageways to drop water to different levels can help prevent gullying.

Additional information on erosion control, cropping sequences, and drainage practices can be obtained from the local office of the Natural Resources Conservation Service, the Cooperative Extension Service, or the Louisiana Agricultural Experiment Station.

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 forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

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, 2e. 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 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area 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 parishes and results of field trials and demonstrations also are 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.

Rangeland

Craig A. Pate, Rangeland Management Specialist, Natural Resources Conservation Service, helped to prepare this section.

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management is based on the relationship of the soils, vegetation, and water.

All of the marshland in St. John the Baptist Parish can be defined as rangeland; however, the percentage of marsh rangeland that can be grazed by livestock is very low. The biggest barrier to grazing by livestock is that the majority of the soils are not

firm enough to support the weight of livestock. The hazards that affect grazing marsh rangeland require unique management. These hazards include insects, disease, unusually deep inundation from heavy rainfall or storm tides, a scarcity of shelter, and unstable soil conditions in areas where livestock can become bogged down.

Insects, especially mosquitoes, can be a serious hazard during summer months, particularly in areas of brackish marshes. Cattle can lose weight and even die during severe infestations. This hazard can be reduced by seasonal grazing in the winter and at other times when infestations are low.

High water levels during periods of heavy rainfall or storm tides force cattle to concentrate on higher ground, such as spoil banks and ridges. Cattle lose weight under these conditions and are more susceptible to communicable diseases. Prolonged periods of high water can cause normally firm soils to become unstable to the extent that they will not support livestock grazing. If fences are not located, maintained, and used correctly, livestock can stray into areas of unstable soils.

The following measures can help to overcome the hazards that affect grazing marsh rangeland and allow optimum use of this resource:

Fencing. Installing fences helps to distribute livestock grazing and prevent livestock from straying into areas that are boggy. Four strand barbed wire fences are generally used in the marsh. Posts need to be treated with preservatives and protected from fire. Fire can damage the galvanized coating on fence wires and increase their susceptibility to rust. Fences should be located so that they separate different ecological sites where practical.

Livestock watering facilities. Water for livestock is needed on many ecological sites because the water in bayous, ponds, and pits can become too salty in summer for cattle to drink. Fresh water from wells is the most dependable source of water for livestock. Proper locations and spacing of watering facilities helps to distribute grazing.

Prescribed burning. Prescribed burning is used widely in marsh rangeland. Livestock producers and trappers burn off the dense cover of mature marsh vegetation so that new, succulent growth for cattle and wildlife is stimulated and the availability of forage is increased. The natural vegetation can be severely damaged if burned during periods of drought when the fire can reach the crowns and roots of the plants. The marshes should be burned every other year and at a time when the surface is covered by water.

Supplemental feeding. Supplemental feeding or access to improved pastures is needed on most of the marsh rangeland to provide an adequate supply of forage throughout the year. Maidencane, a major forage plant in the fresh marshes, produces only a small amount of green forage during cold weather. The vegetation remaining from the previous growing season weathers rapidly and quickly becomes unsatisfactory as forage. Unless the weather warms and allows new growth of vegetation, supplemental feed must be provided to cattle. Providing the supplemental feed in a timely manner helps to prevent weight loss in cattle. Calcium and phosphorus minerals should generally be available on a free choice basis throughout the year. During severe weather, protein supplements and roughage should be provided to cattle. Some protein supplements should also be available to cattle grazing on mature vegetation. The supplements generally are not needed in accessible areas that have been controlled burned.

Insect control. When insects, especially mosquitoes, become intolerable during the summer, cattle should be removed from the brackish marshes. The marsh rangeland should be grazed during the period mid-October to mid-April. Most summer grazing should occur on the fresh marsh rangeland or on improved pastures at the higher elevations.

Brush management. Aerial spraying of herbicides can be done to control willow, Chinese tallow tree, rattlebox, hemp sesbania, and other undesirable vegetation.

Herbicides must be handled carefully and properly applied according to directions on the label. Prescribed burning can also be used to manage some brush species. When properly applied, herbicides and prescribed burning can be safely and effectively used to control undesirable vegetation with no threat to people, livestock, wildlife, fish, desirable plants, or water quality.

The marsh rangeland in St. John the Baptist Parish is assigned to one of two ecological sites—Fresh Organic Marsh or Fresh Fluid Mineral Marsh. These ecological sites produce a characteristic climax plant community that differs from climax plant communities on other ecological sites in kind, amount, or proportion of plant species. The relationship between soils and vegetation was ascertained during this survey; thus, ecological sites generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of these sites. Soil reaction, salt content, flooding, ponding, and a seasonal high water table are also important. The natural plant communities for these ecological sites found in St. John the Baptist Parish are specified in the following paragraphs.

Fresh Organic Marsh. The natural plant community is dominated by maidencane interspersed with colonies of bull-tongue, pickerelweed, and cattails. A variety of other freshwater wetland plants such as marigold-burr and spike-rush are common throughout the community but do not dominate the site. Soils that are included in this ecological site are the Allemands and Carlin mucks.

Fresh Fluid Mineral Marsh. The natural plant community is dominated by maidencane interspersed with colonies of bull-tongue, pickerelweed, and cattails. A variety of other freshwater wetland plants such as bulrush and spike-rush are common throughout the community but do not dominate the site. The Kenner muck is included in this ecological site.

The goal of range management is to maintain or improve the structure and functions of the vegetation, soil, water, air, and the ecological processes on rangelands in order to help the owner or manager of those lands achieve their desired enterprise objectives. Proper management results in optimum vegetation production, suppression of undesirable plants, enhancement of water quality, and control of erosion. Management techniques can be tailored to meet grazing requirements, provide wildlife habitat, and protect soil and water resources.

Forest Productivity and Management

Dr. Terry Clason, State Forester, Natural Resources Conservation Service, helped to prepare this section.

This section identifies, defines, and discusses the major soil characteristics that foresters, woodland owners and users, agriculture workers, and others will find useful in forest establishment, management, utilization, and harvesting. This section provides information on the relation between trees and the soils in which they grow and includes soil interpretations that can be used in planning. Depth, fertility, texture, and available water capacity influence tree growth. Elevation, aspect, and climate determine the kinds of trees that can grow on a site.

St. John the Baptist Parish contains approximately 76,900 acres of commercial forestland. Commercial forestland is defined as that land producing or is capable of producing crops of industrial wood and will not be withdrawn from timber use. The ownership of forestland in St. John the Baptist Parish is as follows: 27 percent corporate, 46 percent individual, and 27 percent forest industry.

Corporate is defined as lands privately owned by private corporations other than forest industries and incorporated farms. *Individual* is defined as lands privately owned by individuals rather than forest industries, farmers, or miscellaneous private

corporations. *Forest industry* is defined as lands owned by companies or individuals operating wood-using plants (either primary or secondary).

Commercial forests may be divided into different forest types. These types may be based on tree species, site quality, or age. In this section, forest types are stands of trees of similar character, composed of the same species, and growing under the same ecological and biological conditions. These forest types are named for the dominant trees.

The *oak-gum-cypress* forest type in St. John the Baptist Parish comprises about 13,500 acres, or 100 percent, of the forested area. Cottonwood, willow, ash, elm, sugarberry, and maple are associated with this forest type.

The volume of growing stock in the parish is southern hardwood. Most of the forest acreage is in sawtimber (60 percent) and seedlings and saplings (40 percent).

Productivity of forestland can be measured by the amount of cubic feet of wood produced per acre per year. Many of the productive sites are in land uses other than forestland. Forestland in St. John the Baptist Parish is fairly productive with 7 percent producing 120 to 165 cubic feet per year, 86 percent producing 50 to 85 cubic feet per year, and less than 7 percent producing less than 50 cubic feet per year.

Other values associated with forestland include wildlife habitat, recreation, natural beauty, and soil and water conservation. A large portion of the acreage in St. John the Baptist Parish is subject to flooding. Some good stands of commercial trees are produced in the woodlands in this parish. The potential value of the wood products is substantial, but under present conditions, much of the area is far below its potential. Some of the forested areas are used for commercial crawfishing.

Trees can be planted to screen distracting views of dumps and other unsightly areas, muffle traffic sound, reduce wind velocity, and lend beauty to the landscape. Trees help filter out dust and other impurities from the atmosphere, convert carbon dioxide to oxygen, release moisture, and provide shade. They also produce fruits and nuts for use by people and wildlife.

Forest Productivity

In table 6, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forest Management

In tables 7a through 7d, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance

can be expected, and little or no maintenance is needed. *Moderately well suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

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

Rating class terms for fire damage and seedling mortality are expressed as *low*, *moderate*, and *high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A

rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance; and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately well suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (deep)* are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreation

St. John the Baptist Parish provides excellent opportunity for hunting of waterfowl, such as ducks, deer, rabbit, and squirrel. However, a majority of marsh and swamp areas that are suitable for hunting are either privately owned or in commercial hunting clubs.

The parish has two wildlife management areas which are owned by the Louisiana Department of Wildlife and Fisheries. The Maurepas Swamp Wildlife Management Area, which is 61,295 total acres in size (about 24,000 acres in St. John the Baptist Parish), permits primarily waterfowl, deer, and squirrel hunting, as well as fishing and other recreational activities. The Manchac Wildlife Refuge, which is 8,325 acres in size, permits waterfowl hunting, as well as fishing and other recreational activities.

The parish provides excellent opportunities for freshwater fishing. The many canals, bayous, and lakes provide opportunities for sport fishing. The primary species caught are bass, bream, crappie, and catfish. In addition to hunting and fishing, other recreational activities, such as crabbing, camping, picnicking, swimming, water skiing, and bird-watching, are available in the parish.

The soils in the survey area are rated in tables 8a and 8b according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

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

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

The information in tables 8a and 8b can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas.

The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic

areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

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

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

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

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

Wildlife Habitat

Michael D. Nichols, Wildlife Biologist, Natural Resources Conservation Service, helped to prepare this section.

Wildlife and fisheries habitat is very unique and diverse within the boundaries of St. John the Baptist Parish. Due to its proximity to the Gulf of Mexico, the parish is home to an extremely diversified group of ecosystems. This blending zone between land and sea supports a wide variety of habitats utilized by numerous species of fish and wildlife. The main habitat types include the coastal marsh; woodland, including cypress-tupelo swamp and hardwood bottomland; and open land, such as cropland and pastureland.

A large proportion of the waterfowl that utilizes the Mississippi Flyway either migrate in the marsh in the winter or stopover for food and rest during their migration to and from the tropics. About 500 wild alligators are harvested each year contributing an estimated 2 million dollars directly into the parish economy (fig. 5). A high population of furbearers, such as nutria, muskrat, and raccoon, occur in the marshes. Furbearer and alligator harvests provide a substantial seasonal boost to the local economy.



Figure 5.—Alligator sunning in a canal in an area of Barbary soils, frequently flooded.

Many different kinds of non-consumptive wildlife and fish utilize the freshwater marsh. Songbirds, hawks, owls, shorebirds, and wading birds use the marsh either seasonally or year-round. The endangered bald eagle nests in baldcypress trees growing in swampy areas. A host of reptilian and amphibian species meet their habitat needs within the confines of the coastal marsh.

Marsh plants differ in their tolerance to salt, and the composition of a marsh plant community indicates the type of marsh and approximate level of salinity.

Large numbers of waterfowl, nutria, mink, otters, raccoons, swamp rabbits, white-tailed deer, and American alligators utilize the freshwater marsh. Waterfowl favor freshwater marsh over the other marsh types. Dabbling ducks, such as mallard and teal, spend the winter months primarily in the freshwater marsh. Few muskrat are found in the freshwater marsh, but nutria numbers often reach detrimental levels. Managed harvests of these animals, especially the nutria, are carried out each winter to prevent “eat outs.” These are areas of marsh on which nutria have almost completely stripped the vegetation. Without controlled harvests, these vermin will eat

themselves out of house and home by destroying the marsh plant communities that hold the fragile marsh soils intact. Freshwater fisheries include such species as catfish, largemouth bass, bluegill, and black crappie. Species of birds commonly found in the freshwater marsh include egrets, herons, and ibises.

Forestland covers approximately 90,795 acres, or about 66 percent, of the land area in St. John the Baptist Parish. The two major types of forestland occurring in the Parish are cypress-tupelo swamps and bottomland hardwoods. Wooded areas provide habitat for woodland wildlife, such as white-tailed deer, rabbits, mink, otters, raccoons, squirrels, wood ducks, migratory birds, and wading birds. American alligators, crawfish, and fish are usually plentiful in wooded areas that are frequently flooded.

Cypress-tupelo swamps cover approximately 35 percent of St. John the Baptist Parish. Although these areas are frequently flooded, swamps usually support trees. Baldcypress and tupelo-gum are well-adapted to wet conditions, and these species are the dominant trees. Except for buttonbush and Drummond red maple, understory species are sparse, mainly due to the flooded conditions. The main soils in the swamp include the Barbary soil and Maurepas muck.

The remaining portion of forestland in St. John the Baptist Parish consists primarily of *bottomland hardwoods*, which cover about 5 percent of the total land area of the parish. Bottomland hardwood forests usually occur along the flanks of bayous where the elevation is slightly higher than found in swamps. Bottomland hardwood forests are occasionally flooded, and these areas typically support green ash, sugarberry, water tupelo, water oak, and sweetgum. The main soil found in bottomland hardwood forests is the Schriever soil.

Open land habitat is found mainly along the higher ridges in St. John the Baptist Parish and comprises about 15 percent, or 33,181 acres, of the total land area of the parish. The elevation is generally at or above 5 feet mean sea level. A large percentage of the area is used to produce agricultural crops, mainly sugarcane. The main soils are the Cancienne, Gramercy, and Schriever soils. Some areas provide habitat for wildlife, but most areas are of limited value due to a lack of food and cover. Bobwhite quail, cottontail rabbits, and doves are the most common game species. A small acreage is left fallow each year, and if not grazed, these areas provide good wildlife habitat.

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

The ratings in the tables are both verbal and numeric. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the element or kind of habitat. *Not limited* indicates that the soil has features that are very favorable for the element or kind of habitat. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Creating, improving, or maintaining habitat is impractical or impossible.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate

gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The elements of wildlife habitat are described in the following paragraphs. Selection of appropriate species should be made from a list of locally adapted species.

Grain and seed crops for food and cover 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.

Domestic grasses and legumes for food and cover 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.

Upland 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.

Upland shrubs and vines are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs and vines are depth of the root zone, available water capacity, salinity, and soil moisture.

Upland deciduous 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 are depth of the root zone, available water capacity, and wetness.

Upland coniferous trees are cone-bearing trees, shrubs, or ground cover that provides habitat or supplies food in the form of browse, seed, or fruitlike cones. Soil properties and features that affect the growth of coniferous trees are depth of the root zone, available water capacity, and wetness.

Upland mixed deciduous and coniferous trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, browse, seeds and foliage. Soil properties and features that affect the growth of these trees are depth of the root zone, available water capacity, and wetness.

Riparian herbaceous plants are annual and perennial native or naturally established grasses and forbs that grow on moist or wet sites. Soil properties and features affecting riparian herbaceous plants are surface texture, wetness, flooding, ponding, and surface stones.

Riparian shrubs, vines, and trees are bushy woody plants and trees that grow on moist or wet sites. Soil properties and features affecting these plants are surface texture, wetness, flooding, ponding, and surface stones.

Freshwater wetland plants are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur adjacent to springs, seeps, depressions, bottomlands, marshes, or backwater areas of flood plains. Most areas are ponded for some period of time during the year. Soil properties and features affecting these plants are surface texture, wetness, ponding, and soil reaction.

Irrigated freshwater wetland plants are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur in areas of cropland, previously cropped areas, and marginal areas associated with cropland and wetlands. These areas may be ponded for some period of time during the year. These areas are generally suitable for restoring wetland features temporarily or permanently. Soil properties and features affecting these plants are surface texture, permeability, wetness, ponding, and soil reaction.

Marshland Management

John Pitre, State Biologist, Natural Resources Conservation Service, helped to prepare this section.

General management needed to control the loss of marshlands and to improve marshlands for use as habitat for wetland wildlife is suggested in this section.

Planners of management systems for individual areas should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the staff at the local office of the Natural Resources Conservation Service, the Cooperative Extension Service, or the Louisiana Agricultural Experiment Station.

Geologic subsidence of the Gulf Coastal marshes is the main natural cause of marshland loss. As the continental shelf and adjoining marshlands slowly subside, some of the marshlands at the lowest elevation become submerged below sea level. Little can be done about the losses caused by these natural events; however, the marshland deterioration caused by human actions can be controlled with better management and restraint. Human activities, such as drainage and the construction of channels for navigation, accelerate the rates of erosion, subsidence, and saltwater intrusion.

Coastal marsh erosion changes areas of marshland to open water areas. In most cases, this is a permanent land loss because the open water areas are too deep to revegetate.

The production of fish and wildlife resources in the marshes of the parish is directly related to the marsh plant community. When the plants are killed by increases in salinity or for other reasons, the other dependent resources are degraded. Each plant species and community requires a definite range of salinity and water levels for growth. The marsh plants are the basic source of energy for dependent animal populations, such as muskrat, and conditions enhancing plant growth serve to benefit the fish and wildlife resources. The fish and wildlife population density and diversity are dependent on the plants; therefore, the need for maintaining the marshland resource base is very important ecologically and economically.

The organic soils of the marshland are very sensitive to increases in salinity. Saltwater intrusions into brackish and freshwater marshes have increased in recent years. The increased salinity causes the loss of surface vegetation. When the plants die, they start decomposing and eventually are carried out of the marshes by tidal action. In a very short time, the surface soil is lost and the areas revert to open water. This loss is generally permanent along with the associated loss of sustained annual soil productivity.

Many opportunities exist for improving the marshes of St. John the Baptist Parish for fish, wildlife, and other resources. The marshland is a delicately balanced ecosystem that requires an interdisciplinary approach to planning and implementing management practices that will improve the habitat for waterbirds, furbearers, and fish. Following are some suggested management practices:

Weirs. Weirs are low level dams placed in marsh water courses to provide better water management capability. Fixed-crest weirs are normally placed so the weir crest is about 6 inches below average marsh level. These water-control structures stabilize water levels in the marsh, reduce the turbidity levels of the water, improve plant community condition, and improve human access during the winter months by holding water in the bayous and canals.

Prescribed or controlled burning. Prescribed or controlled burning is a very useful and economical technique to improve marsh vegetative conditions. Periodic controlled burning helps maintain a good variety of marsh plants, which in turn has a positive impact on furbearers, such as muskrat, and other wildlife species. Controlled burning done in the fall of the year is the best for wildlife; however, winter burning also has some positive results.

Levee impoundments. Levee impoundments can be installed if soils are suitable for construction. Almost every form of marsh wildlife uses the impoundments for feeding, roosting, brood rearing, or cover areas. Landowner objectives, marsh type, and other factors determine the management techniques to use on an impoundment.

Shoreline erosion control. Numerous studies and field trials have been conducted to determine suitable techniques for shoreline erosion, which is one of the primary concerns for St. John the Baptist Parish and the entire coastal area. Structural and vegetative approaches or combinations of these are currently being used. Individual site conditions vary and include soils, salinity, potential wave action, and size of the water body.

Smooth cordgrass. One of the most promising plants to use in the tidal zone of saline and brackish areas is smooth cordgrass, which is generally available locally. Smooth cordgrass is easily established in the tidal zone where a large part of the erosion is occurring. It withstands a wide salinity range, expands rapidly in the tidal zone, normally provides shoreline protection in one growing season, and forms dense stands which dissipate wave energy.

Engineering

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

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

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

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

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; 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.

Urban Development

The expansion of LaPlace in St. John the Baptist Parish has resulted in the development of parts of the nearby marshes and swamps for urban uses. The organic soils and fluid mineral soils in these marshes and swamps are severely limited for most urban uses because of flooding, wetness, and the low to high subsidence potential. Although wetness and flooding are common problems on many of the soils in the parish, subsidence is a problem unique to the organic soils and the fluid mineral soils in the marshes and swamps. Subsidence is the loss of surface elevation after an organic soil or a fluid mineral soil is artificially drained. Subsidence on organic soils after drainage is attributed mainly to shrinkage caused by drought; consolidation from loss of the buoyant force of ground water or from loading, or both; compaction; and biochemical oxidation. The problems associated with subsidence in the survey area are mainly in the Allemands and Carlin mucks, frequently flooded Barbary soils, Kenner muck, and frequently flooded Maurepas muck.

The elevation loss caused by shrinkage and consolidation is termed initial subsidence, and it is normally completed about three years after the water table is lowered. Initial subsidence of organic soils causes about a 50 percent reduction of thickness of the organic materials above the water table. This reduction is accompanied by permanent open cracks that do not close when the soil is re-wet. After initial subsidence, shrinkage continues at a uniform rate because of the biochemical oxidation and subsequent disintegration of the organic materials. This is termed continued subsidence, and it progresses until the mineral material or the permanent water table is reached. The rate of continued subsidence depends on temperature (amount of time per year above 41 degrees Fahrenheit, 5 degrees Centigrade), mineral content, and thickness of the organic layers above the water table. The average rate of continued subsidence in the survey area is about 0.5 inch to 2 inches per year. The total subsidence potential is as much as 144 inches for some soils.

An important feature of organic soils is low bulk density (weight per unit volume). The low bulk density reflects the small volume of mineral matter in organic soil material. The mineral content of organic soil material is about 6 percent on a volume basis compared to about 40 percent for mineral soil. The rest of the volume is organic matter and pore space filled with air and water. This accounts for compressibility under load, volume change on drying, and general instability if used as foundation material.

Fluid mineral soil layers have a potential for initial subsidence caused by loss of water and consolidation after drainage. Each time the water table is lowered and the fluid soil material is drained, a new increment of initial subsidence takes place. Continued subsidence after drainage is minor on soils that have fluid mineral layers.

Additional urbanization on organic soils and fluid mineral soils can lead to increased subsidence if the water table is lowered. Because of the hard surface cover of streets, parking lots, buildings, and other structures, the absorptive capacity of the soil is decreased. This increases runoff; consequently, drainage canal size and pumping capacity are generally increased to accommodate the additional runoff. As a

result of the more intensive drainage, the water table is lowered. This is accompanied by a new increment of initial subsidence. With this new depth of drainage ditches, pumping capacity must again be increased to prevent flooding. This cycle will continue until all of the organic material has been oxidized and the mineral layers dewatered; however, this seemingly endless cycle can be interrupted.

Subsidence of organic soils can be effectively controlled by maintaining the water table at the surface. Subsidence can be reduced to some degree by covering the surface with mineral soil material to slow oxidation. It can be further reduced by raising the water table as high as possible to reduce the thickness of organic material between the mineral soil fill material and the water table. In land use decisions, a choice must be made in controlling the water table—to use the land without drainage to control subsidence; to use the land with some drainage, but to tolerate wet conditions and minimum subsidence; or to provide better drainage and tolerate subsidence at a greater rate.

Subsidence is a very severe limitation for most urban uses in the survey area. Unless piling is used to support buildings, they tilt and foundations crack. Organic soils around structures built on piling subside, and periodic filling is needed to maintain a desirable surface elevation. When organic soils subside, foundations are exposed and unsupported driveways, patios, air conditioner slabs, and sidewalks crack and warp and gradually drop below original levels. Underground utility lines may be damaged.

The concern of homeowners and communities that have subsidence is to find ways to resolve the problems. Some things can be done to minimize the subsidence problems.

Selection of building site. Avoid sites that have organic or fluid mineral soil layers. The final selection should be based on onsite examination.

Structure design and materials. The recommendations of qualified professionals, such as structural engineers, soil engineers, and architects, should be followed. New or innovative construction techniques and materials can minimize some problems. For example, constructing buildings on piers above ground instead of on concrete slabs on the ground can help overcome some problems. The possibility of gas accumulating under the slabs would be eliminated as well as the need for fill material to cover exposed slabs. The use of small sections of easily moved, unjoined fabricated material or concrete in the construction of sidewalks, driveways, and patios would eliminate cracking and possibly make re-leveling after subsidence easier. Other construction materials, such as brick, shell, gravel, or lightweight aggregate, could be considered for these uses.

Initial site fill practices. Subsidence can be reduced by adding mineral fill material to the organic soil surface. Thin blankets of fill that do not reach the permanent water table will reduce the rate of subsidence. The amount of reduction is related to the amount of oxygen that is excluded from organic layers and the thickness of organic layers above the water table. If the base of the mineral fill material is within the permanent water table, subsidence caused by oxidation of organic materials will be eliminated. Future subsidence (unless the water table is lowered) will be limited to compaction or displacement. Loamy mineral soil material is generally considered the most desirable fill material. Fill material high in organic content should be avoided.

Maintenance or continual filling practices. Filling is necessary on organic soils to maintain the esthetic value of home sites. Filling helps avoid sunken lawns and exposed foundation footings that result from subsidence. If several inches or more of subsidence occur, adding small amounts or thin layers of fill is generally preferable over adding thick layers. Regularly adding 1 inch or 2 inches of fill material as needed generally will not permanently harm most lawn grasses and landscape plants. If filling is postponed, however, until several inches to a foot or more of fill is required, the thick layers of fill could result in permanent damage.

Underground utilities. Engineering innovations that allow utility lines to be moved as the soil surface elevation changes should reduce the number of failures. For example, flexible pipes at joints where pipes are connected to stationary structures could be used rather than rigid pipes.

Water level control. Water level or depth to the continuous water table is an important factor affecting the rate of subsidence. Generally, the nearer to the surface that the water table is maintained, the slower the rate of subsidence. Micro differences in the surface elevation that occur in most urban-developed areas contribute to uneven water table depths and to differences in rates of subsidence. Precision leveling within an area for urban uses would help eliminate the differences in water table depth. Also, a carefully designed and constructed drainage system would make it possible to maintain a desirable, uniform water table throughout the level area. In developed unlevelled areas, a system to monitor the level of the water table would provide information needed to determine optimum water table levels.

Site development on organic soils. Generally, site development on organic soils involves first building a levee and a pumping system to lower the water table below the organic layers. Sufficient time (one to three years) is necessary for initial subsidence. The area then could be backfilled hydrologically or by other methods with mineral fill material to a desired level to help reduce possible flooding. The mineral fill material would load and compact the organic layers, then the water table could be raised to a level where the organic layers would be permanently inundated. By keeping the water table above the organic layers, oxygen would be excluded. Under this condition, the organic material would be preserved; therefore, subsidence would be at a minimum, and the soils of the area would be stable for urban uses. In addition, a few feet of proper mineral fill material would provide a good environment for utility lines.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 10a and 10b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

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

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

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil

at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Lawns and Gardens

In general, the soils in St. John the Baptist Parish have fertility levels that are adequate for most lawn and garden plants. Besides fertility, other important soil

properties for growing lawn and garden plants are texture, subsidence potential, wetness, reaction, and flooding hazard. Use and management of the soils in the parish for lawns and gardens are discussed in the following paragraphs.

Soils on natural levees that are protected from flooding. These soils border former channels and distributaries of the Mississippi River. They are firm mineral soils and generally are suited to grow most lawn and garden plants without major modification or treatment. These soils have high fertility, low subsidence potential, and strongly acid to moderately alkaline reaction. They are only slightly or moderately wet and are not flooded for long periods.

The loamy Cancienne soils are easily worked, but the more clayey Schriever soils are hard when dry and sticky when wet. These soils are difficult to cultivate when used as landscape beds or gardens. Soils that have a clayey surface layer can be improved for lawns and gardens by adding several inches of loamy fill material to the surface of the soil.

Soils in marshes and swamps that are frequently flooded and ponded. Unless these soils are protected from flooding and drained, they are generally not suited to urban uses. After they are drained, they will have continuing limitations similar to those discussed in the previous paragraphs.

Fill material is commonly used to improve the soils for lawns and gardens and to raise their surface elevation. Listed below in descending order of suitability for use in lawns and gardens are the kinds of fill material commonly available in LaPlace and surrounding areas.

Loamy material deposited by former channels and distributaries of the Mississippi River is excavated from areas of loamy soils, such as Cancienne. Fill from this material has favorable texture, reaction, and fertility. It compacts easily, but compaction can be controlled or reduced with proper management.

Clayey material deposited by former channels and distributaries of the Mississippi River is excavated from areas of Gramercy and Schriever soils and has favorable fertility and reaction. The clayey material is sticky when wet and hard when dry, and it becomes cloddy if tilled when too wet or too dry. Soil tilth can be improved by adding organic matter and mixing loamy or sandy material into the surface layer.

Coarse sand (builders sand or beach sand) has very low water-holding capability and low nutrient-holding capacity. It is loose and easy to work. The suitability for lawns and gardens can be improved by mixing in peat or loamy material from another source.

Organic material is typically excavated from the drained swamps and marshes. It has limitations for use in landscaping. It shrinks, subsides, and decomposes over time and becomes extremely acid as it decomposes. Mixing loamy soil material with the organic material and applying lime improves its suitability for use in lawns and gardens.

Some soil related problems cannot be eliminated by adding fill material to the soil surface. For example, continuing subsidence causes planters to fail and break away from houses. Borders of flower beds can become uneven because of differential subsidence, especially in the soils that have buried logs and stumps. Some soil related problems can be partly overcome by adding fill material. Large cracks can form on the surface during dry periods. Adding a few inches of loamy fill material to the soil surface annually, or more often as needed, improves the soil for use as lawns and gardens.

Sanitary Facilities

Table 11 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The

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

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

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 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

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. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, 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. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A trench sanitary landfill is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are

based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid 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. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

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. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

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 the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction and Excavating Materials

In table 12, the soils are rated *good*, *fair*, or *poor* as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation. Normal compaction, minor processing, and other standard construction practices are assumed. Sources for sand and gravel are limited due to the thick silty and clayey surface layers of the soils in St. John the Baptist Parish and are not included in the table.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

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

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

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

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

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. Embankments that have zoned construction (core and shell) are not considered. 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.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. 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 particle-size distribution, plasticity, and compaction characteristics.

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

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features. The results of chemical and physical analyses and evaluation of fertility levels of selected soils are also provided.

Engineering Soil Properties

Table 14 gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

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

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

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

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

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

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

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

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

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

Physical Soil Properties

Table 15 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

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

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 15, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

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

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

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, 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 soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

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

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

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

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

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

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

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

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

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

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams.
4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

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

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

Chemical Soil Properties

Table 16 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

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

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

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

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

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Soil Features

Table 17 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

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

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

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

Water Features

Table 18 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

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

The four hydrologic soil groups are:

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

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

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

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

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

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

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

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

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

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

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development. Also considered is local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Fertility Levels

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This section contains information on both the environmental factors and the physical and chemical properties of the soils that affect their potential for crop production. It also lists the analytical methods that were used to determine the chemical properties of the sampled soils.

The goal of soil testing is to provide information for a soil and crop management program that establishes and maintains optimum levels and balance of the essential elements in the soil for crop and animal nutrition and that protects the environment against the buildup of potentially toxic levels of essential and nonessential elements.

Current soil tests attempt to measure the available supply of one or more nutrients in the plow layer. Where crop production is clearly limited by available supply of one or more nutrients, existing soil tests generally can diagnose the problem, and reliable recommendations to correct the problem can be made. Soil management systems generally are based on physical and chemical alteration of the plow layer. Characteristics of this layer can vary from one location to another, depending upon management practices and soil use.

Subsurface horizons are less subject to change or change very slowly as a result of alteration of the plow layer. These horizons reflect the inherent ability of the soil to supply nutrients to plant roots and to provide a favorable environment for root growth. If soil fertility recommendations based on current soil tests are followed, major fertility problems in the plow layer are normally corrected. Crop production is then limited by crop and environmental factors, physical properties of the plow layer, and physical and chemical properties of the subsoil.

Factors Affecting Crop Production

Crop composition and yield are a function of many environmental, plant, and soil factors. These factors are interdependent. The magnitude of the factors and the interactions among them control crop response. The relative importance of each factor changes from soil to soil, crop to crop, and environment to environment. The soil factors are only part of the overall system and are discussed below.

Environmental Factors

The main environmental factors are light (intensity and duration), temperature (air and soil), precipitation (distribution and amount), and atmospheric carbon dioxide concentration.

Plant Factors

These factors are species- and hybrid-specific. They include the rate of nutrient and water uptake and the rate of growth and related plant functions.

Soil Factors

These factors include physical, chemical, and mineralogical properties of the soils. *Physical properties.* These factors are texture, structure, surface area, bulk density, aeration, water retention, and flow.

Chemical properties (soil fertility factors). The quantity of the chemical element and the rate of replenishment of the elements to the soils are the factors of chemical properties that affect crop growth.

Quantity factor describes the concentration of a nutrient ion absorbed or held in exchangeable form on the solid phase of the soil. This form of nutrient ion is available for plant uptake.

Replenishment factor is the rate of replenishment of the available supply of nutrients in the solid and solution phases by weathering reactions, fertilizer additions, and transport by mass flow and diffusion.

Fertility Analysis Methods

Information on the available nutrient supply in the subsoil allows evaluation of the natural fertility levels of the soil. Soil profiles were sampled during the soil survey and analyzed for soil reaction, organic matter content, extractable phosphorus, hydrogen, total acidity, and cation-exchange capacity. The results are summarized in table 19. The methods used in obtaining the data are indicated in the list below. The codes in parentheses refer to published methods (USDA, 1996).

Organic matter—acid-dichromate oxidation (6A1a)

pH—1:1 soil/water solution (8C1a)

Extractable phosphorus—Bray 2 extractant (0.03 molar ammonium fluoride—0.1 molar hydrochloric acid)

Exchangeable cations—pH 7, 1 molar ammonium acetate-calcium (6N2), magnesium (6O2), potassium (6Q2), sodium (6P2)

Exchangeable aluminum and hydrogen—1 molar potassium chloride (6G2)

Total acidity—pH 8.2, barium chloride-triethanolamine (6H1a)

Effective cation-exchange capacity—sum of bases plus exchangeable aluminum and hydrogen (5A3b)

Base saturation—sum of cations/sum cation-exchange capacity (5C3)

Sum cation-exchange capacity—sum of bases plus total acidity (5A3a)

Aluminum saturation—exchangeable aluminum/effective cation-exchange capacity

Characteristics of Soil Fertility

In general, four major types of nutrient distribution in soils of Louisiana can be identified. The first type includes soils that have relatively high levels of available nutrients throughout the profile. This type reflects the relatively high fertility status of the parent material from which soils developed at a relatively young age or a less intense degree of weathering of the soil profile.

The second type of nutrient distribution includes soils that have relatively low levels of available nutrients in the surface layer, but generally have increasing levels with depth through the soil profile. These soils have relatively fertile parent material, but are more mature soils that have been subjected either to weathering over a longer period of time or to more intense weathering. If the levels of available nutrients in the surface layer are low, crops may exhibit deficiency symptoms early in the growing season. Deficiency symptoms often disappear if crop roots are able to penetrate to the more fertile subsoil as the growing season progresses.

The third type of nutrient distribution includes soils that have adequate or relatively high levels of available nutrients in the surface layer but have relatively low levels in the subsoil. Such soils developed from low fertility parent material, or they are mature soils that have been subjected to more intense weathering over a longer period of time. The higher nutrient levels in the surface layer generally are a result of fertilization in agricultural soils or biocycling in undisturbed soils.

The fourth type of nutrient distribution includes soils that have relatively low levels of available nutrients throughout the soil profile. These soils developed from low fertility parent material, or they are mature soils that have been subjected to intense

weathering over a long period of time. Neither fertilization nor biocycling has contributed to nutrient levels in the surface layer of these soils.

All of the soils in St. John the Baptist Parish are in the first group. Soil reaction, organic matter content, sodium content, and cation-exchange capacity can provide evidence of the general nutrient status of soils. Nutrient status is the result of the interactions of parent material, weathering (climate), time, and, to a lesser extent, organisms and topography.

Nitrogen. More than 90 percent of nitrogen in the surface layer is in the organic form. Most of the nitrogen in the subsoil is fixed ammonium nitrogen. This form of nitrogen is unavailable for plant uptake. Nitrogen generally is the most limiting nutrient element in crop production because of high plant demand. For most soils, nitrogen fertilizer recommendations are based on the nitrogen requirement of the crop rather than nitrogen soil test levels because no reliable nitrogen soil tests have been developed for Louisiana soils.

Information on the nitrogen fertility status of a soil can be obtained by measuring several soil nitrogen parameters. These include the amount of readily available ammonium and nitrate nitrogen in the soil, the amount of organic nitrogen, the rate of mineralization of organic nitrogen to available forms of inorganic nitrogen, and the rate of conversion of fixed ammonium nitrogen to available forms of nitrogen. Unfortunately, since the amounts and rates of transformation of the various forms of nitrogen in the soils in St. John the Baptist Parish have not been determined, no assessment of the nitrogen fertility status for these soils can be given. However, fertilizer nitrogen recommendations obtained from the Louisiana Cooperative Extension Service may be used to determine application rates.

Phosphorus. Phosphorus exists in soils as inorganic phosphorus in soil solution; as discrete minerals, such as hydroxyapatite; as occluded or coprecipitated phosphorus in other minerals, such as carbonates, metal oxides, and layer silicates; and in organic compounds. Soil solution concentrations of phosphorus generally are low. Since plant roots obtain almost all phosphorus from the soil solution, phosphorus uptake depends on the ability of the soil solid phase phosphorus to maintain phosphorus concentration in soil solution. Soil test procedures generally attempt to measure soil solution phosphorus and the readily available solid phase phosphorus that buffers the solution phase concentration.

The Bray 2 extractant tends to extract more phosphorus than the commonly used Bray 1, Mehlich 1, and Olsen extractants. The soils on the natural levees in St. John the Baptist Parish, such as Cancienne and Gramercy, generally have medium to high levels of phosphorus.

Potassium. Potassium exists in four major forms in soils. These are soil solution potassium, exchangeable potassium associated with negatively charged sites on clay mineral surfaces, nonexchangeable potassium within clay mineral interlayers, and structural potassium within the crystal lattice of minerals.

Exchangeable potassium in soils can be replaced by other cations and is generally readily available for plant uptake. To become available to plants, nonexchangeable potassium and structural potassium must be converted to exchangeable potassium through weathering reactions. Crops respond to fertilizer potassium if exchangeable potassium levels are very low to low. Low levels can gradually be built up by adding fertilizer potassium to soils that contain a sufficient amount of clay to hold the potassium. Exchangeable potassium levels can be maintained by adding enough fertilizer potassium to account for crop removal, fixation of exchangeable potassium to nonexchangeable potassium, and leaching losses. Soils that have a sandier texture, such as Carville, do not have a sufficient amount of clay to hold the potassium; therefore, they do not have a sufficiently high cation-exchange capacity to maintain adequate quantities of available potassium for sustained crop production. More frequent additions of potassium are needed to balance losses of potassium by

leaching in these soils. The content of exchangeable potassium in soils is an estimate of the supply of potassium available to plants. The content of available potassium in the soils in St. John the Baptist Parish generally is moderate to high according to soil test interpretation guidelines.

Magnesium. Magnesium exists in soil solution as exchangeable magnesium associated with negatively charged sites on clay mineral surfaces and as structural magnesium in mineral crystal lattices. Solution and exchangeable magnesium generally are readily available for plant uptake, whereas structural magnesium must be converted to exchangeable magnesium during mineral weathering reactions.

According to soil test interpretation guidelines, the exchangeable magnesium of the soils in St. John the Baptist Parish is low, medium, or high, depending upon soil texture. Low exchangeable magnesium levels are found throughout most of the soil magnesium throughout the profile because of variable textures. Higher levels of exchangeable magnesium are generally associated with higher clay content in the horizons of some soils, such as Gramercy and Schriever soils. The levels of exchangeable magnesium in most of the soils in St. John the Baptist Parish are more than adequate for crop production, especially where the plant roots can exploit the high levels of magnesium found in the subsoil. Because magnesium deficiencies in plants are normally rare, fertilizer sources of magnesium are generally not needed for crop production.

Calcium. Calcium exists in soil solution as exchangeable calcium associated with negatively charged sites on clay mineral surfaces and as structural calcium in mineral crystal lattices. Exchangeable calcium generally is available for plant intake while structural calcium is not. Calcium deficiencies in plants are extremely rare. Calcium normally is added to soils from liming materials used to correct problems associated with soil acidity.

Calcium generally is the most abundant exchangeable cation in the soils in St. John the Baptist Parish. In most of the soils in the parish, the content of exchangeable calcium is higher than, or about the same as, the content of exchangeable magnesium. As depth increases, the content of exchangeable calcium increases in some soils and remains about the same in other soils. A content of exchangeable calcium that is higher in the subsoil than in the surface layer generally is associated with a high content of clay in the subsoil or with free carbonates.

Organic matter. The organic matter content of a soil greatly influences other soil properties. High organic matter content in mineral soils is desirable, while low organic matter content can lead to many problems. Increasing the organic matter content can greatly improve the soil structure, drainage, and other physical properties. It can also increase the moisture-holding capacity, cation-exchange capacity, and nitrogen content. Increasing the organic matter content is very difficult because organic matter is continually subject to microbial degradation. This is especially true in Louisiana where higher soil temperatures and water content increase microbial activity. The rate of organic matter degradation in native plant communities is balanced by the rate of input of fresh material. Disruption of this natural process can lead to a decline in the organic matter content of the soil. Unsound management practices lead to a further decrease in organic matter content. If no degradation of organic matter occurs, 10 tons of organic matter addition will raise the organic matter content in the upper 6 inches of the soil by just 1 percent. Since breakdown of organic matter does occur in the soil, large amounts of organic matter must be added to the soil over a period of several decades to produce a small increase in the organic matter content. Conservation tillage and use of cover crops slowly increase the organic matter content over time, or at least prevent further declines.

The content of organic matter in the soils in St. John the Baptist Parish generally is moderately low for the soils on the natural levees that are in crop production. It decreases sharply with depth because fresh inputs of organic matter are confined to

the surface layer. These moderately low levels reflect the high rate of organic matter degradation, erosion, and the use of cultural practices that make maintenance of organic matter at higher levels difficult. The soils in swamps and marshes have a high organic matter content in the surface layers or throughout the profile.

Sodium. Sodium exists in soil solution as exchangeable sodium associated with negatively charged sites on clay mineral surfaces and as structural sodium in mineral crystal lattices. Because sodium is readily soluble and generally is not strongly retained by soils, well drained soils subjected to moderate or high rainfall normally do not have significant amounts of sodium. Soils in low rainfall environments may have high amounts of sodium. High levels of exchangeable sodium in soils are associated with undesirable physical properties such as poor structure, slow permeability, and restricted drainage.

Most of the soils in St. John the Baptist Parish have more exchangeable sodium than exchangeable potassium. Where the content of exchangeable sodium is more than about 6 percent of the cation-exchange capacity within the rooting depth of crops, production can be limited. Some soils in the parish that are used for agricultural purposes have a moderately high content of exchangeable sodium below the surface layer. This restricts the permeability of these soils by deflocculating the soil structural aggregates.

Exchangeable aluminum and hydrogen, pH, and exchangeable and total acidity. The pH of the soil solution in contact with the soil affects other soil properties. The lower the pH, the more acidic the soil. Soil pH controls the availability of essential and nonessential elements by controlling mineral solubility, ion exchange, and absorption-desorption reactions at the surfaces of the soil minerals and organic matter. The pH also affects microbial activity.

Aluminum exists in soils as exchangeable polymeric hydrolysis species, aluminum oxides, and aluminosilicate minerals. Exchangeable aluminum in soils is determined by extraction with neutral salts, such as potassium chloride or barium chloride. The exchangeable aluminum in soils is directly related to pH. If the pH is less than 5.5, the soils have significant amounts of exchangeable aluminum that has a charge of plus 3. This species of aluminum is toxic to plants. The toxic effects of aluminum on plant growth can be alleviated by adding lime to the soil to convert exchangeable aluminum to nonexchangeable polymeric hydrolysis species. High levels of organic matter can alleviate aluminum toxicity.

Sources of exchangeable hydrogen in soils include hydrolysis of exchangeable and nonexchangeable aluminum and pH-dependent exchange sites on metal oxides, certain layer silicates, and organic matter. Exchangeable hydrogen, as determined by extraction with such neutral salts as potassium chloride, normally is not a major component of soil acidity. Exchangeable hydrogen is not readily replaced by other cations unless accompanied by a neutralization reaction. Most of the neutral salt-exchangeable hydrogen in soils apparently comes from aluminum hydrolysis.

Acidity from hydrolysis of neutral salt-exchangeable aluminum plus neutral salt-exchangeable hydrogen from pH-dependent exchange sites makes up the exchangeable acidity in soils. Exchangeable acidity is determined by the pH of the soil. Titratable acidity is the amount of acidity neutralized to a selected pH, generally pH 7 or 8.2, and constitutes the total potential acidity of a soil. All sources of soil acidity, including hydrolysis of monomeric and polymeric aluminum species and hydrogen from pH-dependent exchange sites on metal oxides, layer silicates, and organic matter, contribute to the total potential acidity. Total potential acidity in soils is determined by titration with base or incubation with lime, extraction with a buffered extractant followed by titration of the buffered extractant (pH 8.2, barium chloride-triethanolamine method), or equilibration with buffers followed by estimation of acidity from changes in buffer pH.

Except those soils in former marshes and swamps that have been drained, most of the soils in St. John the Baptist Parish have medium to high pH, contain significantly low quantities of exchangeable aluminum, and have low levels of total acidity in most of the soil horizons. In drained soils, the upper part of the soil typically becomes increasingly acid as the organic matter decomposes.

Cation-exchange capacity. The cation-exchange capacity is a measure of the amount of nutrient and non-nutrient cations a soil can hold in an exchangeable form. The cation-exchange capacity depends on the number of negatively charged sites, both permanent and pH-dependent, resulting from an array of minerals, usually clay size, present in the soil. Permanent charge cation-exchange sites occur because a net negative charge develops on a mineral surface from substitution of ions within the crystal lattice. A negative charge developed from ionization of surface hydroxyl groups on minerals and organic matter produces pH-dependent cation-exchange sites.

Methods for determining cation-exchange capacity are available and can be classified as one of two types. These include methods that use unbuffered salts to measure the cation-exchange capacity at the pH of the soil and methods that use buffered salts to measure the cation-exchange capacity at a specified pH. These methods produce different results since buffered salt methods include only a part of the pH-dependent cation-exchange capacity up to the pH of the buffer, pH 7 and 8.2. Errors in the saturation, washing, and replacement steps also can cause different results.

The effective cation-exchange capacity is the sum of exchangeable bases, which includes calcium, magnesium, potassium, and sodium. Effective cation-exchange capacity is determined by extraction with 1 molar ammonium acetate at pH 7 plus the sum of neutral salt-exchangeable aluminum and hydrogen (exchangeable acidity).

The sum cation-exchange capacity is the sum of exchangeable bases plus the total acidity determined by extraction with pH 8.2, barium chloride-triethanolamine. The effective-cation exchange capacity generally is less than the sum cation-exchange capacity and includes only that part of the pH-dependent cation-exchange capacity that is determined by exchange of hydrogen with a neutral salt. The sum cation-exchange capacity includes all of the pH-dependent cation-exchange capacity up to pH 8.2. If a soil contains no pH-dependent exchange sites, or if the pH of the soil is about 8.2, the effective and sum cation-exchange capacity will be about the same. The larger the cation-exchange capacity, the larger the capacity to store nutrient cations.

Chemical and Physical Analysis of Selected Soils

The results of chemical analysis of several typical pedons in the survey area are given in table 20, and the results of physical analysis in table 21. The data are for soils sampled at carefully selected sites. Unless otherwise indicated, the pedons are typical of the series. They are described in the section "Soil Series and Their Morphology." Soil samples were analyzed by the Soil Characterization Laboratory, Louisiana Agricultural Experiment Station, and the National Cooperative Soil Survey Laboratory, Natural Resources Conservation Service, Lincoln, Nebraska.

Depth to the upper and lower boundaries of each layer is indicated. Most determinations, except those for grain-size analysis and bulk density, were made on soil material smaller than 2 millimeters in diameter. Measurements reported as percent or quantity of unit weight were calculated on an oven-dry basis. The methods used in obtaining the data are indicated in the list that follows. The codes in parentheses refer to published methods (USDA, 1996).

Sand—(0.05-2.0 mm fraction) weight percentages of material less than 2 mm (3A1)
Silt—(0.002-0.05 mm fraction) pipette extraction, weight percentages of all material less than 2 mm (3A1)
Clay—(fraction less than 0.002 mm) pipette extraction, weight percentages of material less than 2 mm (3A1)
Water retained—pressure extraction, percentage of oven-dry weight of less than 2 mm material; $\frac{1}{3}$ or $\frac{1}{10}$ bar (4B1), 15 bars (4B2)
Water-retention difference—between $\frac{1}{3}$ bar and 15 bars for whole soil (4C1)
Bulk density—of less than 2 mm material, saran-coated clods field moist (4A1a), $\frac{1}{3}$ bar (4A1d), oven-dry (4A1h)
Extractable cations—ammonium acetate pH 7.0, ICP; calcium (6N2i), magnesium (6O2h), sodium (6P2f), potassium (6Q2f)
Extractable acidity—barium chloride-triethanolamine IV (6H5a)
Cation-exchange capacity—ammonium acetate, pH 7.0, steam distillation (5A8b)
Base saturation—ammonium acetate, pH 7.0 (5C1)
Organic carbon—wet combustion. Walkley-Black modified acid-dichromate, ferric sulfate titration (6A1c)
Reaction (pH)—1:1 water dilution (8C1f)
Reaction (pH)—calcium chloride (8C1f)
Aluminum—potassium chloride extraction (6G9c)
Iron—acid oxalate extraction (6C9b)

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

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

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

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

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite

determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 2002).

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

The following criteria reflect those soils that are likely to meet the definition of hydric soils in St. John the Baptist Parish:

1. All Histosols; or
2. Soils in Aquic suborders, great groups, or subgroups that are:
 - a. Somewhat poorly drained with a water table less than 0.5 foot from the surface during the growing season, or
 - b. Poorly drained or very poorly drained and have either:
 - (1) a water table less than 0.5 foot during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
 - (2) a water table at less than 1 foot from the surface during the growing season if permeability is equal to or greater than 6 inches/hour in all layers within a depth of 20 inches, or
 - (3) a water table at less than or equal to 1.5 feet from the surface during the growing season if permeability is less than 6 inches/hour in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long duration or very long duration during the growing season.
4. Soils that are frequently flooded for long duration or very long duration during the growing season.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

Ba	Barbary soils, frequently flooded
CT	Cancienne and Carville soils, gently undulating, frequently flooded
CU	Allemands and Carlin mucks, very frequently flooded
GrA	Gramercy silty clay, 0 to 1 percent slopes
Ke	Kenner muck, very frequently flooded
Ma	Maurepas muck, frequently flooded
SkA	Schriever clay, 0 to 1 percent slopes
Sm	Schriever clay, frequently flooded

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1998 and 1999). 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 22 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is 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 Aquents (*Aqu*, meaning aqua, or 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; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hydraquents (*Hydr*, meaning presence of water, 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 subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hydraquents.

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, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is very-fine, smectitic, nonacid, hyperthermic Typic Hydraquents.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. An example is the Barbary series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows

standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Allemands Series

MLRA: Gulf Coast Marsh

Local physiographic area: Freshwater marsh

Geomorphic setting: Marsh on delta plain

Parent material: Herbaceous organic material over fluid clayey alluvium

Geology: Holocene organic deposits

Drainage class: Very poorly drained

Permeability class: Impermeable

Soil depth class: Very deep

Shrink-swell potential: Low

Slope: 0 to 1 percent

Associated soils: Carlin and Kenner

Taxonomic classification: Clayey, smectitic, euic, hyperthermic Terric Haplosaprists

Typical Pedon

Allemands muck in an area of Allemands and Carlin mucks, very frequently flooded, in marshland; located 0.3 mile west of Lac Des Allemands on Bayou Lassene, then 1,500 feet southwest on canal and 100 feet due north of canal; USGS Lower Vacherie topographic quadrangle; latitude 29 degrees, 57 minutes, 5 seconds N.; longitude 90 degrees, 37 minutes, 53 seconds W.

Oa1—0 to 2 inches; brown (10YR 4/3) muck; structureless, massive; nonsticky, nonplastic; 40 percent fiber, unrubbed; 15 percent fiber, rubbed; many fine roots throughout; moderately alkaline; clear smooth boundary.

Oa2—2 to 4 inches; dark grayish brown (10YR 4/2) muck; structureless, massive; nonsticky, nonplastic; 30 percent fiber, unrubbed; 10 percent fiber, rubbed; many fine roots throughout; moderately alkaline; clear smooth boundary.

Oa3—4 to 32 inches; very dark gray (10YR 3/1) muck; structureless, massive; nonsticky, nonplastic; 30 percent fiber, unrubbed; 10 percent fiber, rubbed; many fine roots throughout; moderately alkaline; gradual wavy boundary.

Cg1—32 to 65 inches; gray (5Y 5/1) clay; structureless, massive; very sticky, moderately plastic; moderately alkaline; diffuse boundary.

Cg2—65 to 80 inches; dark gray (N 4/) very fine sandy loam; structureless, massive; nonsticky, nonplastic; moderately alkaline.

Range in Characteristics

Solum thickness: 16 to 51 inches—organic material

Redoximorphic features: Gleyed matrix in the mineral layers

Other distinctive soil features: Organic material dominantly from herbaceous material

Concentrated minerals: Electrical conductivity (EC) ranges mainly from 0 to about 2 dS/m in the upper 20 inches and 0 to 4 dS/m from 20 to 80 inches in most years; EC varies lower or higher during periods of excess rainfall or extended droughts

Oa horizon (surface tier):

Color—hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 to 3; or neutral with value of 3 or 4

Redoximorphic features—none

Texture—muck; mineral content ranges from 15 to 40 percent and is dominantly clay, but includes thin strata of loamy material in some pedons; thin clayey over-wash material is on the surface of some pedons

Other features—after rubbing, has a fiber content ranging from less than $\frac{1}{10}$ to more than $\frac{4}{10}$ of the organic volume, where there is no mineral horizon more than 16 inches thick with an upper boundary in the 12 to 36 inch zone; where a mineral layer has an upper boundary in the 16 to 36 inch zone, the fiber content of the 12-inch surface layer is such that a dominant part of the organic portion of the profile will have fiber content of less than $\frac{1}{10}$ the organic volume

Reaction—strongly acid to moderately alkaline

Thickness—12 inches

Oa horizon (subsurface tier):

Color—hue of 5YR, 7.5YR, or 10YR, value of 2 to 4, and chroma of 1 to 3

Redoximorphic features—none

Texture—muck; thin mineral layers in some pedons

Other features—dominant layers have a fiber content of less than $\frac{1}{10}$ the organic volume; mineral content ranges from 20 to 50 percent

Reaction—strongly acid to moderately alkaline

Thickness—4 to 24 inches

Oa horizon (bottom tier):

Color—hue of 5YR, 7.5YR, or 10YR, value of 2 to 4, and chroma of 1 to 3

Redoximorphic features—none

Texture—muck; thin mineral layers in some pedons

Other features—dominant layers have a fiber content of less than $\frac{1}{10}$ the organic volume; mineral content ranges from 20 to 50 percent

Reaction—strongly acid to moderately alkaline

Thickness—0 to 14 inches

Ag horizon (where present):

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

Redoximorphic features—gleyed matrix

Texture—clay or mucky clay containing from 60 to 95 percent clay

Other features—none

Reaction—slightly acid to moderately alkaline

Thickness—0 to 20 inches

Cg horizon:

Color—hue of 10YR, 2.5Y, 5Y, 5G, or 5GY, value of 3 to 6, and chroma of 1 or 2; or neutral with value of 3 to 6

Redoximorphic features—gleyed matrix

Texture—clay or mucky clay to fine sandy loam or mucky sandy loam

Other features—none to few calcium carbonate concretions; none to few iron-manganese concentrations

Reaction—slightly acid to moderately alkaline

Barbary Series

MLRA: Southern Mississippi Valley Alluvium

Local physiographic area: Mississippi River delta backswamps

Geomorphic setting: Swamp on delta plain

Parent material: Fluid clayey alluvium

Geology: Holocene age fluvial sediments

Drainage class: Very poorly drained

Permeability class: Impermeable

Soil depth class: Very deep

Shrink-swell potential: Low

Slope: 0 to 1 percent

Associated soils: Maurepas and Schriever

Taxonomic classification: Very-fine, smectitic, nonacid, hyperthermic Typic
Hydraquents

Typical Pedon

Barbary muck in an area of Barbary soils, frequently flooded, in swamp; located from LaPlace 3.98 miles northwest on U.S. Highway 61, 2.34 miles north on Reserve Relief Canal to I-10 bridge, 3,300 feet farther north on Reserve Relief Canal, then 100 feet west of canal; USGS Reserve topographic quadrangle; latitude 30 degrees, 7 minutes, 14 seconds N.; longitude 90 degrees, 32 minutes, 49 seconds W.

Oa—0 to 10 inches; very dark grayish brown (10YR 3/2) muck; structureless, massive; many medium and coarse roots; slightly alkaline; clear smooth boundary.

Ag—10 to 21 inches; dark gray (10YR 4/1) clay; structureless, massive; many medium and coarse roots; slightly alkaline; gradual wavy boundary.

Cg1—21 to 35 inches; gray (10YR 5/1) clay; structureless, massive; moderately alkaline; gradual wavy boundary.

Cg2—35 to 50 inches; greenish gray (5GY 5/1) clay; structureless, massive; moderately alkaline; gradual wavy boundary.

Cg3—50 to 80 inches; gray (5Y 5/1) clay; structureless, massive; moderately alkaline.

Range in Characteristics

Clay content in the control section: 60 to 95 percent

Redoximorphic features: Depleted or gleyed matrix throughout

Other distinctive soil features: The n-value is greater than 0.7 in all horizons

Concentrated minerals: None

Oa horizon:

Color—hue of 5YR, 7.5YR, or 10YR, value of 2 to 4, and chroma of 1 to 3

Redoximorphic features—none

Texture—muck

Other features—none

Reaction—strongly acid to slightly alkaline

Thickness—0 to 15 inches

A horizon:

Color—hue of 10YR, 2.5Y, or 5Y, value of 3 to 5, and chroma of 1 to 3

Redoximorphic features—depleted or gleyed matrix with few to common iron accumulations in shades of brown or olive

Texture—clay or mucky clay

Other features—slightly fluid to very fluid

Reaction—moderately acid to slightly alkaline

Thickness—0 to 10 inches

Cg horizon:

Color—hue of 10YR, 2.5Y, 5Y, 5GY, 5G, or 5BG, value of 4 or 5, and chroma of 1; or neutral with value of 4 to 6

Redoximorphic features—depleted matrix with none to common iron accumulations in shades of brown or olive in the upper part

Texture—clay or mucky clay

Other features—slightly fluid to very fluid; thin layers of peat or muck and/or layers of wood, logs, and stumps are present in some pedons; buried organic layers that begin within a depth of 40 inches are less than 8 inches thick

Reaction—neutral to moderately alkaline

Cancienne Series

MLRA: Southern Mississippi Valley Alluvium

Local physiographic area: Mississippi River natural levee

Geomorphic setting: Natural levee on delta plain

Parent material: Silty alluvium

Geology: Holocene age fluvial sediments

Drainage class: Somewhat poorly drained

Permeability class: Moderately slow

Soil depth class: Very deep

Shrink-swell potential: Moderate

Slope: 0 to 1 percent

Associated soils: Carville, Grammercy, and Schriever

Taxonomic classification: Fine-silty, mixed, superactive, nonacid, hyperthermic

Fluvaquentic Epiaquepts

Typical Pedon

Cancienne silt loam in an area of Cancienne silt loam, 0 to 1 percent slopes, in row crop; located from LaPlace 8.06 miles northwest on U.S. Highway 61, 1.15 miles southeast on San Francisco Plantation Road, then 75 feet due east into field; USGS Reserve topographic quadrangle; latitude 30 degrees, 3 minutes, 37 seconds N.; longitude 90 degrees, 36 minutes, 27 seconds W.

Ap1—0 to 6 inches; dark grayish brown (2.5Y 4/2) silt loam; weak fine granular structure; friable; many fine and medium roots throughout; common fine and medium pores; moderately acid; clear smooth boundary.

Ap2—6 to 10 inches; dark grayish brown (2.5Y 4/2) silt loam; weak medium granular structure; friable; many fine and medium roots throughout; common fine and medium pores; strongly acid; clear smooth boundary.

Ap3—10 to 16 inches; dark grayish brown (2.5Y 4/2) silt loam; weak medium subangular blocky structure; firm; many very fine and fine roots throughout; few very fine and fine pores; 2 percent prominent irregular strong brown (7.5YR 4/6) and 8 percent medium distinct irregular dark yellowish brown (10YR 4/6) masses of oxidized iron throughout; 2 percent distinct irregular gray (2.5Y 6/1) iron depletions throughout; 2 percent fine faint very dark grayish brown (10YR 3/2) iron-manganese masses on surfaces along root channels; slightly acid; gradual wavy boundary.

Ap4—16 to 23 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium subangular blocky structure; firm; many very fine and fine roots throughout; few very fine and fine pores; 5 percent fine faint very dark grayish brown (10YR 3/2) iron-manganese masses on surfaces along root channels; 8 percent medium prominent dark yellowish brown (10YR 4/6) and 10 percent medium prominent strong brown (7.5YR 4/6) masses of oxidized iron throughout; 10 percent faint light brownish gray (10YR 6/2) iron depletions throughout; slightly alkaline; gradual wavy boundary.

Bg1—23 to 34 inches; grayish brown (2.5Y 5/2) silt loam; weak medium subangular blocky structure; firm; many very fine and fine roots throughout; few very fine pores; moderately alkaline; gradual wavy boundary.

- Bg2—34 to 42 inches; olive yellow (2.5Y 6/6) and grayish brown (2.5Y 5/2) silt loam; weak fine subangular blocky structure; firm; common very fine and fine roots throughout; few very fine pores; 5 percent fine distinct very dark grayish brown (10YR 3/2) iron-manganese masses on surfaces along root channels; moderately alkaline; gradual wavy boundary.
- Bg3—42 to 55 inches; gray (2.5Y 5/1) silty clay; weak fine subangular blocky structure; firm; few very fine pores; 1-inch thick strata of light reddish brown (5YR 6/4) material; 8 percent medium faint irregular dark yellowish brown (10YR 4/4) and 10 percent fine distinct irregular brown (7.5YR 4/3) masses of oxidized iron throughout; moderately alkaline; gradual wavy boundary.
- BCg1—55 to 67 inches; grayish brown (2.5Y 5/2) silty clay loam; structureless, massive; firm; few very fine pores; 3 percent fine distinct very dark grayish brown (10YR 3/2) iron-manganese masses on surfaces along root channels; 8 percent fine and medium distinct irregular dark yellowish brown (10YR 4/6) and yellowish brown (10YR 5/6) masses of oxidized iron throughout; moderately alkaline; gradual wavy boundary.
- BCg2—67 to 80 inches; grayish brown (2.5Y 5/2) silt loam; structureless, massive; firm; many fine and medium pores; 1 percent faint gray (2.5Y 5/1) iron depletions; 3 percent fine distinct very dark grayish brown (10YR 3/2) iron-manganese masses on surfaces along root channels; 3 percent fine and medium distinct irregular strong brown (7.5YR 4/6) and 5 percent fine and medium distinct irregular yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) masses of oxidized iron throughout; moderately alkaline; gradual wavy boundary.

Range in Characteristics

Solum thickness: 40 to 80 inches or more

Clay content in the control section: 18 to 30 percent

Redoximorphic features: Depleted matrix with masses of iron concentration throughout the subsoil and substratum

Other distinctive soil features: Lenses or layers with more than 35 percent clay are at more than 40 inches deep

Concentrated minerals: Some pedons have slight or very slight effervescence in cold dilute HCl in any of the layers

A or Ap horizon:

Color—hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 to 3; under sugarcane culture, the lower part of the Ap horizon of some pedons has hue of 5Y

Redoximorphic features—iron accumulations (where present) are in shades of brown and iron depletions are in shades of gray

Texture—silt loam or silty clay loam

Other features—none

Reaction—strongly acid to moderately alkaline

Thickness—4 to 24 inches

Bg and BC horizons:

Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2; in many pedons, the entire B horizon has been truncated by bedding for sugarcane cultivation and is part of the Ap horizon; B horizon or the lower part of the Ap horizon with a dominant matrix chroma of 2 must begin within a depth of 20 inches

Redoximorphic features—masses of iron accumulation in shades of red are in the upper part in some pedons; masses of iron accumulation in shades of brown or yellow are throughout

Texture—silt loam, loam, or silty clay loam with or without thin to thick strata of silty clay below a depth of 40 inches
 Other features—none
 Reaction—neutral to moderately alkaline
 Thickness—16 to 80 inches or more

Ab horizon (where present):

Color—hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 to 3
 Redoximorphic features—none
 Texture—silt loam, very fine sandy loam, loam, or silty clay loam
 Other features—none
 Reaction—neutral to moderately alkaline
 Thickness—0 to 12 inches

BCgb or BCssgb horizon (where present):

Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2
 Redoximorphic features—masses of iron accumulation in shades of brown or yellow are throughout
 Texture—silty clay
 Other features—depth to this horizon (where present) is more than 50 inches
 Reaction—neutral to moderately alkaline
 Thickness—0 to 20 inches or more

Cg horizon (where present):

Color—hue of 10YR, 2.5Y, or 5Y, value of 4 or 5, and chroma of 1 or 2
 Redoximorphic features—masses of iron accumulation in shades of brown or yellow are throughout
 Texture—commonly is stratified, with textures ranging from silt loam or very fine sand loam to silty clay
 Other features—none
 Reaction—neutral to moderately alkaline

Carlin Series

MLRA: Southern Mississippi Valley Alluvium

Local physiographic area: Freshwater marsh

Geomorphic setting: Floating marsh on Mississippi River delta plain

Parent material: Herbaceous organic material over fluid clayey alluvium

Geology: Holocene age fluvial sediments

Drainage class: Very poorly drained

Permeability class: Impermeable

Soil depth class: Very deep

Shrink-swell potential: Low

Slope: 0 to 1 percent

Associated soils: Allemands and Kenner

Taxonomic classification: Clayey, smectitic, euic, hyperthermic, Terric Haplosaprists

Typical Pedon

Carlin mucky peat in an area of Allemands and Carlin mucks, very frequently flooded, in marshland; located 2,800 feet west of Lac Des Allemands on Brazan Canal, then 400 feet due south into floating marsh; sec. 16, T. 13 S., R. 18 E.; USGS Lower Vacherie topographic quadrangle; latitude 29 degrees, 56 minutes, 52 seconds N.; longitude 90 degrees, 38 minutes, 6 seconds W.

Oa1—0 to 12 inches; brown (7.5YR 4/4) muck; structureless, massive; 10 percent fiber, unrubbed; 5 percent fiber, rubbed; 50 percent organic matter; moderately alkaline.

W—12 to 18 inches; water.

Oa2—18 to 36 inches; very dark gray (10YR 3/1) muck; structureless, massive; 10 percent fiber, unrubbed; 5 percent fiber, rubbed; 50 percent organic matter; moderately alkaline.

Cg1—36 to 44 inches; gray (5Y 5/1) clay; structureless, massive; moderately alkaline.

Cg2—44 to 56 inches; dark gray (N 4/) clay; structureless, massive; moderately alkaline.

Cg3—56 to 86 inches; dark greenish gray (5GY 4/1) clay; structureless, massive; moderately alkaline.

Cg4—86 to 91 inches; very dark grayish brown (10YR 3/2) mucky clay; structureless, massive; 15 percent organic matter; moderately alkaline.

Range in Characteristics

Solum thickness: 36 to 72 inches—combined thickness of organic material and water layer and depth to mineral layers

Redoximorphic features: Gleyed matrix in the mineral layers

Other distinctive soil features: Water layer at 10 to 24 inches deep

Concentrated minerals: None

O horizon (surface tier):

Color—hue of 7.5YR or 10YR, value of 2 to 5, and chroma of 1 to 4

Redoximorphic features—none

Texture—muck or peat

Other features—fiber content is more than $\frac{1}{3}$ of the organic volume in the unrubbed state; fiber content in the 12-inch surface layer is dominantly herbaceous; mineral content ranges from 15 to 45 percent

Reaction—moderately acid to moderately alkaline

Thickness—12 inches

W horizon:

Color—none

Redoximorphic features—none

Texture—water which contains low amounts of solid and semisolid organic material

Other features—none

Reaction—none

Thickness—about 6 to 24 inches (depending on tidal influences and lake levels)

O horizon (subsurface tier):

Color—hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 or 2

Redoximorphic features—none

Texture—muck or peat

Other features—fiber content ranges from 10 to 40 percent of the organic volume in the rubbed state; the upper part floats on underlying water layers; mineral content ranges from 15 to 45 percent

Reaction—moderately acid to moderately alkaline

Thickness—36 inches

Cg horizon:

Color—hue of 10YR, 2.5Y, 5Y, or 5GY, value of 3 to 5, and chroma of 1 or 2

Redoximorphic features—gleyed matrix

Texture—silty clay loam, sandy clay loam, silty clay, mucky clay, or clay

Other features—none

Reaction—moderately acid to moderately alkaline

Carville Series

MLRA: Southern Mississippi Valley Alluvium

Local physiographic area: Mississippi River natural levee

Geomorphic setting: Natural levee on delta plain

Parent material: Silty alluvium

Geology: Holocene age fluvial sediments

Drainage class: Somewhat poorly drained

Permeability class: Moderate

Soil depth class: Very deep

Shrink-swell potential: Low

Slope: 0 to 5 percent

Associated soils: Cancienne and Grammercy

Taxonomic classification: Coarse-silty, mixed, superactive, calcareous, hyperthermic Fluventic Endoaquepts

Typical Pedon

Carville silt loam in an area of Carville silt loam, undulating, in tame pastureland (fig. 6); located from the intersection of U.S. Highways 51 and 61 in LaPlace, 0.6 mile southeast on U.S. Highway 61, 1 mile northeast on Oswald Avenue, 450 feet northwest through tree line, then 1/4 mile southwest along tree line and 250 feet due north into pasture; USGS LaPlace topographic quadrangle; latitude 30 degrees, 4 minutes, 7 seconds N.; longitude 90 degrees, 27 minutes, 50 seconds W.

- Ap1—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; weak medium granular structure; very friable, slightly sticky, nonplastic; many fine roots throughout; moderately alkaline; clear smooth boundary.
- Ap2—6 to 13 inches; grayish brown (10YR 5/2) silt loam; weak fine subangular blocky structure; very friable, slightly sticky, nonplastic; many fine roots throughout; common fine high continuity tubular pores; 5 percent faint organic stains throughout; 15 percent fine distinct irregular dark yellowish brown (10YR 3/4) and dark yellowish brown (10YR 4/4) masses of oxidized iron on faces of peds; strongly alkaline; abrupt smooth boundary.
- C1—13 to 19 inches; grayish brown (10YR 5/2) and brown (10YR 5/3) stratified silt loam; weak fine platy structure; very friable, slightly sticky, nonplastic; many fine roots throughout; common fine high continuity tubular pores; 2 percent fine prominent dendritic brown (7.5YR 4/4) masses of oxidized iron lining pores; 1 percent fine worm casts lining pores; 2 percent medium distinct irregular dark gray (2.5Y 4/1) iron depletions throughout; 8 percent fine distinct irregular dark yellowish brown (10YR 4/4) masses of oxidized iron throughout; moderately alkaline; abrupt smooth boundary.
- C2—19 to 28 inches; brown (10YR 5/3) silt loam; weak fine platy structure; very friable, slightly sticky, nonplastic; common fine roots throughout; common fine and few medium high continuity tubular pores; 5 percent fine distinct dendritic brown (7.5YR 4/4) masses of oxidized iron lining pores; 15 percent fine and medium faint platy light brownish gray (10YR 6/2) iron depletions along lamina or strata faces; moderately alkaline; abrupt wavy boundary.
- C3—28 to 33 inches; grayish brown (10YR 5/2) silt loam; structureless, massive; very friable, slightly sticky, nonplastic; common fine roots throughout; common fine and few medium high continuity tubular pores; 2 percent fine distinct dendritic iron depletions on surfaces along root channels; 5 percent medium distinct irregular



Figure 6.—Profile of Carville silt loam (scale is in centimeters).

yellowish red (5YR 4/6) and 20 percent fine prominent cylindrical strong brown (7.5YR 4/6) masses of oxidized iron lining pores; moderately alkaline; abrupt smooth boundary.

- C4—33 to 39 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure; very friable, slightly sticky, nonplastic; common fine roots throughout; few fine and medium high continuity tubular pores; 15 percent fine and medium distinct dendritic gray (10YR 5/1) iron depletions lining pores; 5 percent fine distinct cylindrical strong brown (7.5YR 4/6) masses of oxidized iron throughout; moderately alkaline; clear smooth boundary.
- Cg1—39 to 45 inches; grayish brown (10YR 5/2) silt loam; structureless, massive; very friable, slightly sticky, nonplastic; few fine roots throughout; common fine high continuity tubular pores; 3 percent fine and medium prominent cylindrical strong brown (7.5YR 4/6) and 15 percent fine and medium prominent cylindrical strong brown (7.5YR 5/6) masses of oxidized iron lining pores; moderately alkaline; clear smooth boundary.
- Cg2—45 to 54 inches; dark greenish gray (5GY 4/1) silt loam; structureless, massive; very friable, slightly sticky, nonplastic; few very fine roots throughout; few very fine high continuity tubular pores; 3 percent fine and medium prominent irregular

brown (7.5YR 4/4) masses of oxidized iron lining pores; 5 percent fine prominent irregular yellowish brown (10YR 5/4) masses of oxidized iron throughout; moderately alkaline; diffuse wavy boundary.

Cg3—54 to 75 inches; dark greenish gray (5GY 4/1) silt loam; structureless, massive; very friable, slightly sticky, nonplastic; 10 percent faint organic stains throughout; 2 percent fine and medium prominent irregular dark yellowish brown (10YR 4/4) masses of oxidized iron throughout; 3 percent fine prominent cylindrical reddish brown (5YR 4/4) masses of oxidized iron lining pores; 1 percent nonflat 2.0- to 7.9-inch wood fragments; moderately alkaline.

Range in Characteristics

Solum thickness: 10 to 50 inches

Clay content in the control section: 6 to 18 percent

Redoximorphic features: Depleted matrix with iron accumulations at less than 20 inches deep

Other distinctive soil features: None

Concentrated minerals: Some pedons have free carbonates within the subsoil

A or Ap horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3; or hue of 7.5YR, value of 4, and chroma of 2

Redoximorphic features—iron accumulations in shades of brown and iron depletions in shades of gray are present in some pedons

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

Other features—none

Reaction—moderately acid to moderately alkaline

Thickness—4 to 14 inches; if a Bg or Bw horizon is not present, an Ap2 horizon that has weak to moderate structural development has its lower boundary at more than 6 inches

Bg or Bw horizon (where present):

Color—hue of 10YR or 2.5Y, value of 4 or 5 (includes value of 6 in the lower part), and chroma of 1 to 3; or hue of 7.5YR, value of 4, and chroma of 2 to 4; some layers or strata with chroma of 3 or 4 has its upper boundary within a depth of 30 inches; in many pedons, the entire Bg horizon has been truncated by bedding for sugarcane cultivation and is part of the Ap horizon

Redoximorphic features—few to many iron accumulations in shades of brown and iron depletions in shades of gray

Texture—dominantly silt loam, loam, or very fine sandy loam, but some pedons have thin strata of finer or coarser material

Other features—none to few secondary carbonates

Reaction—moderately acid to moderately alkaline

Thickness—0 to 46 inches

C horizon:

Color—hue of 10YR or 2.5Y, value of 4 or 5 (includes value of 6 in the lower part), and chroma of 2; or subhorizons with chroma of 3 or 4 that are due to color of the sand or silt grains; some subhorizons of the Bg or C horizon within a depth of 20 inches must have chroma of 1 or 2 in the matrix

Redoximorphic features—few to many iron accumulations in shades of brown and iron depletions in shades of gray

Texture—dominantly silt loam, loam, or very fine sandy loam, but some pedons have thin strata of finer or coarser material

Other features—none

Reaction—moderately acid to moderately alkaline

Cg horizon:

- Color—hue of 10YR, 2.5Y, 5Y, or 5GY, value of 4 to 6, and chroma of 1 or 2
- Redoximorphic features—few to many iron accumulations in shades of brown and iron depletions in shades of gray
- Texture—dominantly silt loam, loam, or very fine sandy loam, but some pedons have thin strata of silty clay loam or silty clay below a depth of 40 inches
- Other features—many pedons have wood fragments in the Cg horizon
- Reaction—moderately acid to moderately alkaline

Gramercy Series

MLRA: Southern Mississippi Valley Alluvium

Local physiographic area: Mississippi River natural levee

Geomorphic setting: Natural levee on delta plain

Parent material: Clayey alluvium

Geology: Holocene age fluvial sediments

Drainage class: Poorly drained

Permeability class: Impermeable

Soil depth class: Very deep

Shrink-swell potential: Very high

Slope: 0 to 1 percent

Associated soils: Cancienne, Carville, and Schriever

Taxonomic classification: Fine, smectitic, hyperthermic Chromic Epiaquerts

Typical Pedon

Gramercy silty clay in an area of Gramercy silty clay, 0 to 1 percent slopes (fig. 7); located from the intersection of U.S. Highways 51 and 61 in LaPlace, 12.2 miles west on U.S. Highway 51, 2.4 miles south on Louisiana Highway 641 across bridge at Gramercy, 4.65 miles east on Louisiana Highway 18, 2,200 feet south on farm road across railroad tracks, then 150 feet west into field; USGS Reserve topographic quadrangle; latitude 30 degrees, 1 minute, 26 seconds N.; longitude 90 degrees, 36 minutes, 36 seconds W.

Ap1—0 to 6 inches; very dark gray (10YR 3/1) silty clay; weak fine subangular blocky structure; firm, moderately sticky, moderately plastic; slightly acid; clear smooth boundary.

Ap2—6 to 11 inches; very dark gray (10YR 3/1) silty clay; moderate medium angular blocky structure; firm, very sticky, very plastic; many fine roots between peds; common fine low continuity tubular pores; 3 percent fine faint threadlike dark grayish brown (10YR 4/2) masses of oxidized iron lining pores; 7 percent prominent very dark gray (10YR 3/1) pressure faces on all faces of peds; slightly alkaline; abrupt wavy boundary.

Bssg1—11 to 22 inches; gray (10YR 5/1) silty clay; moderate medium angular blocky parting to moderate medium prismatic structure; firm, very sticky, very plastic; many fine roots between peds; common very fine low continuity tubular pores; 5 percent faint grayish brown (10YR 5/2) slickensides (pedogenic) and 25 percent prominent grayish brown (10YR 5/2) pressure faces on all faces of peds; 5 percent medium prominent irregular brown (7.5YR 4/4) and 10 percent medium distinct irregular brown (10YR 4/3) masses of oxidized iron on faces of peds; slightly alkaline; gradual smooth boundary.

Bssg2—22 to 36 inches; gray (10YR 5/1) silty clay; moderate medium angular blocky parting to moderate medium prismatic structure; firm, very sticky, very plastic; many fine roots between peds; common very fine low continuity tubular pores; 5 percent faint gray (10YR 5/1) slickensides (pedogenic), 10 percent distinct very



Figure 7.—Profile of Gramercy silty clay (scale is in centimeters).

dark gray (10YR 3/1) organic stains, and 25 percent prominent gray (10YR 5/1) pressure faces on all faces of peds; 8 percent medium prominent irregular brown (7.5YR 4/4) and 20 percent medium prominent irregular dark yellowish brown (10YR 4/6) masses of oxidized iron on faces of peds; slightly alkaline; clear wavy boundary.

Bssg3—36 to 42 inches; gray (10YR 5/1) clay; moderate medium angular blocky parting to weak medium prismatic structure; firm, very sticky, very plastic; common fine roots between peds; common very fine low continuity tubular pores; 5 percent faint gray (10YR 5/1) slickensides (pedogenic) and 25 percent prominent gray (10YR 5/1) pressure faces on all faces of peds; 15 percent medium prominent irregular dark yellowish brown (10YR 4/4) masses of oxidized iron on faces of peds; 1 percent fine distinct irregular light gray (10YR 7/1) barite masses on faces of peds; slightly alkaline; gradual wavy boundary.

Bg—42 to 48 inches; gray (10YR 5/1) silty clay; moderate medium angular blocky structure; firm, moderately sticky, moderately plastic; common fine roots between peds; common very fine low continuity tubular pores; 15 percent distinct gray (10YR 5/1) pressure faces on all faces of peds; 10 percent medium distinct irregular brown (10YR 4/3) and 20 percent medium distinct irregular dark

yellowish brown (10YR 4/4) masses of oxidized iron on faces of peds; neutral; clear wavy boundary.

Ab—48 to 55 inches; dark gray (10YR 4/1) silty clay loam; moderate medium angular blocky structure; firm, moderately sticky, moderately plastic; common fine roots between peds; common very fine low continuity tubular pores; 1 percent medium prominent cylindrical reddish brown (5YR 4/4) masses of oxidized iron lining pores; 10 percent faint dark gray (10YR 4/1) pressure faces on all faces of peds; 7 percent fine distinct irregular dark yellowish brown (10YR 4/4) masses of oxidized iron on faces of peds; slightly alkaline; gradual wavy boundary.

Bgb1—55 to 63 inches; gray (10YR 5/1) silty clay loam; moderate medium angular blocky parting to moderate medium prismatic structure; firm, moderately sticky, moderately plastic; common fine roots between peds; common very fine low continuity tubular pores; 20 percent distinct dark gray (10YR 4/1) organic stains and 25 percent distinct dark gray (10YR 4/1) pressure faces on all faces of peds; 12 percent medium prominent irregular yellowish brown (10YR 5/6) masses of oxidized iron on faces of peds; neutral; gradual wavy boundary.

Bgb2—63 to 80 inches; gray (10YR 5/1) silty clay; moderate medium angular blocky structure; firm, moderately sticky, moderately plastic; few very fine roots between peds; 25 percent distinct gray (10YR 5/1) pressure faces on all faces of peds; 10 percent medium distinct irregular dark yellowish brown (10YR 4/4) masses of oxidized iron on faces of peds; 1 percent fine distinct irregular light gray (10YR 7/1) barite masses on faces of peds; neutral.

Range in Characteristics

Solum thickness: 60 to 80 inches or more

Clay content in the control section: 35 to 55 percent

Redoximorphic features: Depleted matrix with iron accumulations throughout the solum

Other distinctive soil features: Depth to subsoil layers with less than 35 percent clay ranges from 30 to 60 inches; a clayey discontinuity is at 60 to 80 inches or more deep

Concentrated minerals: None

Ap horizon:

Color—hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2; or neutral with value of 4

Redoximorphic features—none to common masses of iron accumulation and iron depletions in shades of brown and gray

Texture—silty clay loam or silty clay; some pedons have a surface mantle of recent over-wash material that is stratified silt loam

Other features—none

Reaction—moderately acid to moderately alkaline

Thickness—6 to 12 inches

Bssg horizon:

Color—hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1; or neutral with value of 4 to 6

Redoximorphic features—common masses of iron accumulation and iron depletions in shades of brown and gray

Texture—silty clay or clay

Other features—some pedons have thin lenses or seams of material with hue of 5YR or redder within the horizon

Reaction—moderately acid to moderately alkaline

Thickness—18 to 50 inches

Ab horizon:

Color—hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 or 2
 Redoximorphic features—none to common masses of iron accumulation and iron depletions in shades of brown and gray
 Texture—silty clay loam
 Other features—none
 Reaction—moderately acid to moderately alkaline
 Thickness—0 to 10 inches

Bg and Bgb horizons:

Color—hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1 or 2; or neutral with value of 4 to 6
 Redoximorphic features—few to common masses of iron accumulation and iron depletions in shades of brown and gray
 Texture—silty clay loam in the parts within a depth of 40 inches; silt loam, silty clay loam, or very fine sandy loam with or without strata or lenses of clay or silty clay in the parts below 40 inches
 Other features—some pedons have thin lenses or seams of material with hue of 5YR or redder within the horizon
 Reaction—moderately acid to moderately alkaline

2BCg or 2Cg horizon (where present):

Color—hue of 2.5Y, 5Y, 5GY, 5G, or 5BG, value of 3 to 6, and chroma of 1
 Redoximorphic features—none to common masses of iron accumulation and iron depletions in shades of brown and gray
 Texture—silty clay, clay, or silty clay loam
 Other features—none
 Reaction—moderately acid to moderately alkaline

Kenner Series

MLRA: Southern Mississippi Valley Alluvium

Local physiographic area: Freshwater marsh

Geomorphic setting: Marsh on delta plain

Parent material: Herbaceous organic material over fluid clayey alluvium

Geology: Holocene age organic sediments

Drainage class: Very poorly drained

Permeability class: Impermeable

Soil depth class: Very deep

Shrink-swell potential: Low

Slope: 0 to 0 percent

Associated soils: Allemands

Taxonomic classification: Euic, hyperthermic Fluvaquentic Haplosaprists

Typical Pedon

Kenner muck in an area of Kenner muck, very frequently flooded, in marshland; located 2,150 feet north of Lac Des Allemands on Bayou Lassene, then 60 feet due east of bayou edge into marsh; NE¹/₄ sec. 5, T. 13 S., R. 19 E.; USGS Lac Des Allemands topographic quadrangle; latitude 29 degrees, 58 minutes, 50 seconds N.; longitude 90 degrees, 33 minutes, 53 seconds W.

Oa—0 to 18 inches; very dark grayish brown (10YR 3/2) muck; 30 percent fiber, unrubbed; 10 percent fiber, rubbed; 50 percent organic matter; moderately alkaline.

Cg—18 to 21 inches; gray (5Y 5/1) clay; moderately alkaline.

- Oa¹—21 to 37 inches; very dark grayish brown (10YR 3/2) muck; 10 percent fiber, unrubbed; 3 percent fiber, rubbed; 40 percent organic matter; moderately alkaline.
- Oa²—37 to 49 inches; dark brown (7.5YR 3/2) muck; 10 percent fiber, unrubbed; 5 percent fiber, rubbed; 40 percent organic matter; moderately alkaline.
- C^g—49 to 53 inches; very dark gray (10YR 3/1) clay; moderately alkaline.
- O^a—53 to 70 inches; very dark grayish brown (10YR 3/2) muck; 5 percent fiber, unrubbed; 0 percent fiber, rubbed; 40 percent organic matter; moderately alkaline.
- C^g—70 to 84 inches; dark gray (10YR 4/1) mucky clay; moderately alkaline.

Range in Characteristics

Solum thickness: 51 to 100 inches or more—organic material with thin mineral layers

Redoximorphic features: Gleyed matrix in the mineral layers

Other distinctive soil features: The n-value ranges from 0.7 to 1 or more throughout; thin mineral strata are at 16 to 51 inches deep

Concentrated minerals: Sodium absorption ratio ranges from about 1 to 12; exchangeable sodium percentage ranges from about 1 to 14 in more than half the subsurface tier; control section is nonsaline (electrical conductivity (EC) less than 2 dS/m)

Oa horizon (surface tier):

Color—hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 to 3

Redoximorphic features—none

Texture—muck; some pedons have a thin over-wash mineral surface layer

Other features—rubbed fiber content ranges from 5 to 60 percent; mineral content typically ranges from 40 to 70 percent

Reaction—moderately acid to slightly alkaline

Thickness—12 inches

Oa horizon (subsurface tier):

Color—hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 to 3

Redoximorphic features—none

Texture—muck

Other features—rubbed fiber content ranges from 1 to 8 percent

Reaction—moderately acid to slightly alkaline

Thickness—24 inches

Oa horizon (bottom tier):

Color—hue of 5YR or 10YR, value of 2 or 3, and chroma of 1 to 3

Redoximorphic features—none

Texture—muck

Other features—rubbed fiber content ranges from 1 to 8 percent

Reaction—moderately acid to slightly alkaline

Thickness—15 to 40 inches or more

Cg and C^g horizons:

Color—hue of 10YR, 2.5Y, 5Y, or 5GY (or neutral), value of 4 or 5, and chroma of 1; upon exposure to air, the color range will change to hue of 10YR, value of 2 to 4, and chroma of 1

Redoximorphic features—gleyed matrix

Texture—clay, silty clay, or mucky clay

Other features—very fluid

Reaction—moderately acid to slightly alkaline

Thickness—individual strata that are within the organic layers range from 1 to 10 inches

Maurepas Series

MLRA: Southern Mississippi Valley Alluvium
Local physiographic area: Mississippi River delta backswamps
Geomorphic setting: Swamp on delta plain
Parent material: Herbaceous organic material
Geology: Holocene age organic sediments
Drainage class: Very poorly drained
Permeability class: Unspecified
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent
Associated soils: Barbary
Taxonomic classification: Euic, hyperthermic Typic Haplosaprists

Typical Pedon

Maurepas muck in an area of Maurepas muck, frequently flooded, in swamp; located from LaPlace 7.43 miles north of the intersection of I-10 and I-55, on I-55 to exit ramp for Peuline Road, 3.58 miles north on Peuline Road to Bayou Black, then 350 feet east on Bayou Black and 300 feet northeast of Bayou into swamp; sec. 28, T. 9 S., R. 8 E.; USGS Ruddock topographic quadrangle; latitude 30 degrees, 14 minutes, 7 seconds N.; longitude 90 degrees, 24 minutes, 24 seconds W.

- Oa1—0 to 10 inches; very dark grayish brown (10YR 3/2) oxidized and dark brown (7.5YR 3/2) muck; structureless, massive; 15 percent fiber, unrubbed; 5 percent fiber, rubbed; moderately alkaline; clear smooth boundary.
- Oa2—10 to 23 inches; very dark grayish brown (10YR 3/2) oxidized and dark brown (7.5YR 3/2) muck; structureless, massive; 30 percent fiber, unrubbed; 3 percent fiber, rubbed; moderately alkaline; clear smooth boundary.
- Oa3—23 to 64 inches; very dark grayish brown (10YR 3/2) oxidized and brown (7.5YR 4/4) muck; structureless, massive; wood fragments; moderately alkaline; clear smooth boundary.
- Cg—64 to 80 inches; dark gray (N 4/), mucky clay; structureless, massive; wood fragments; moderately alkaline.

Range in Characteristics

Solum thickness: 51 to 80 inches or more—organic material
Redoximorphic features: Gleyed matrix in the mineral layers
Other distinctive soil features: Wood fragments in the lower part of the organic layers
Concentrated minerals: Salinity is nonsaline to slightly saline in more than half of the subsurface and bottom tiers

Oa horizon (surface tier):

Color—hue of 5YR, 7.5YR, or 10YR, value of 1 to 3, and chroma of 1 or 2
 Redoximorphic features—none
 Texture—muck
 Other features—rubbed fiber content is 2 to 40 percent
 Reaction—moderately acid to moderately alkaline
 Thickness—12 inches

Oa horizon (subsurface tier):

Color—hue of 5YR, 7.5YR, or 10YR, value of 2 or 3, and chroma of 1 to 4
 Redoximorphic features—none
 Texture—muck

Other features—unrubbed fiber content is as much as 60 percent; rubbed fiber content is less than 10 percent

Reaction—moderately acid to moderately alkaline

Thickness—24 inches

Oa horizon (bottom tier):

Color—hue of 5YR, 7.5YR, or 10YR, value of 2 or 3, and chroma of 1 to 4

Redoximorphic features—none

Texture—muck

Other features—rubbed fiber content is less than 10 percent; some pedons have thin layers that contain more fiber that is dominantly woody; some pedons have as much as 45 percent herbaceous fiber in the 0- to 51-inch control section; organic layers contain between 15 and 45 percent mineral matter; logs, dominantly cypress, and wood fragments in varying states of decomposition are commonly throughout the organic material

Reaction—moderately acid to moderately alkaline

Thickness—15 to 40 inches or more

Cg horizon:

Color—gleyed colors in bluish or greenish shades of gray

Redoximorphic features—gleyed matrix

Texture—clay or mucky clay

Other features—very fluid

Reaction—neutral to moderately alkaline

Schriever Series

MLRA: Southern Mississippi Valley Alluvium

Local physiographic area: Mississippi River backswamps

Geomorphic setting: Backswamp on delta plain

Parent material: Clayey alluvium

Geology: Holocene age fluvial sediments

Drainage class: Poorly drained and very poorly drained

Permeability class: Impermeable

Soil depth class: Very deep

Shrink-swell potential: Very high

Slope: 0 to 1 percent

Associated soils: Cancienne and Gramercy

Taxonomic classification: Very-fine, smectitic, hyperthermic Chromic Epiaquerts

Typical Pedon

Schriever clay in an area of Schriever clay, frequently flooded, in hardwoods; located 0.5 mile east of St. John the Baptist Parish and St. James Parish line on Louisiana Highway 61, then 3 miles north on woods trail and 68 steps east of drainage ditch; USGS Lucher topographic quadrangle; latitude 30 degrees, 4 minutes, 42 seconds N.; longitude 90 degrees, 39 minutes, 23 seconds W.

A—0 to 4 inches; dark gray (10YR 4/1) clay; weak medium angular blocky structure; firm, very sticky, very plastic; many very fine and fine roots; 1 percent fine distinct dark yellowish brown (10YR 4/4) masses of oxidized iron on faces of peds; slightly acid; clear smooth boundary.

Bg—4 to 15 inches; gray (10YR 5/1) clay; weak medium angular blocky structure; firm, very sticky, very plastic; common very fine and fine roots; 20 percent medium distinct irregular brown (7.5YR 4/4) masses of oxidized iron on faces of peds; neutral; gradual smooth boundary.

- Bssg—15 to 23 inches; gray (2.5Y 5/1) clay; moderate medium prismatic parting to moderate medium subangular blocky structure; firm, very sticky, very plastic; few very fine roots; distinct slickensides (pedogenic); 1 percent fine distinct irregular very dark grayish brown (10YR 3/2) manganese masses on faces of peds; 20 percent medium distinct irregular dark yellowish brown (10YR 4/4) masses of oxidized iron on faces of peds; neutral; gradual smooth boundary.
- Bkssg1—23 to 30 inches; gray (2.5Y 5/1) clay; moderate medium prismatic parting to moderate medium subangular blocky structure; firm, very sticky, very plastic; distinct slickensides (pedogenic); 1 percent fine distinct light gray (10YR 7/1) carbonate masses on slickensides; 1 percent fine distinct irregular very dark grayish brown (10YR 3/2) manganese masses on faces of peds; 5 percent fine and medium prominent irregular brown (7.5YR 4/4) and 20 percent medium distinct irregular dark yellowish brown (10YR 4/4) masses of oxidized iron on faces of peds; slightly alkaline; gradual smooth boundary.
- Bkssg2—30 to 38 inches; gray (2.5Y 5/1) clay; moderate medium prismatic parting to moderate medium subangular blocky structure; very firm, very sticky, very plastic; few very fine roots; distinct slickensides (pedogenic); 2 percent fine distinct light gray (10YR 7/1) carbonate masses on slickensides; 20 percent medium prominent irregular dark yellowish brown (10YR 4/6) and yellowish brown (10YR 5/6) masses of oxidized iron on faces of peds; slightly alkaline; gradual smooth boundary.
- Bkssg3—38 to 46 inches; gray (2.5Y 5/1) clay; moderate medium prismatic parting to moderate medium subangular blocky structure; very firm, very sticky, very plastic; few very fine roots; distinct slickensides (pedogenic); 2 percent fine distinct light gray (10YR 7/1) carbonate masses on slickensides; 20 percent medium prominent irregular yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) masses of oxidized iron on faces of peds; slightly alkaline; gradual wavy boundary.
- Bssg'1—46 to 52 inches; gray (2.5Y 5/1) clay; moderate medium prismatic parting to moderate medium subangular blocky structure; very firm, very sticky, very plastic; few very fine roots; distinct slickensides (pedogenic); 1 percent fine and medium prominent irregular brown (7.5YR 4/4) masses of oxidized iron on slickensides; 20 percent medium prominent irregular yellowish brown (10YR 5/6) masses of oxidized iron on faces of peds; slightly alkaline; gradual wavy boundary.
- Bssg'2—52 to 60 inches; gray (2.5Y 5/1) clay; moderate medium prismatic parting to moderate medium subangular blocky structure; very firm, very sticky, very plastic; few very fine roots; distinct slickensides (pedogenic); 1 percent fine and medium prominent irregular brown (7.5YR 4/4) masses of oxidized iron on slickensides; 20 percent medium prominent irregular yellowish brown (10YR 5/6) masses of oxidized iron on faces of peds; slightly alkaline; gradual wavy boundary.
- Bssg'3—60 to 70 inches; gray (5Y 5/1) clay; moderate medium prismatic parting to moderate medium subangular blocky structure; very firm, very sticky, very plastic; few very fine roots; distinct slickensides (pedogenic); distinct dark gray (N 4/0) organic stains on slickensides; 5 percent fine and medium prominent irregular brown (7.5YR 4/4) masses of oxidized iron on slickensides; 20 percent fine and medium prominent irregular yellowish brown (10YR 5/4) masses of oxidized iron throughout; slightly alkaline; gradual wavy boundary.
- Bssg'4—70 to 80 inches; gray (5Y 5/1) clay; moderate medium prismatic parting to moderate medium subangular blocky structure; very firm, very sticky, very plastic; few very fine roots; distinct slickensides (pedogenic); distinct dark gray (N 4/0) organic stains on slickensides; 5 percent fine and medium prominent irregular brown (7.5YR 4/4) masses of oxidized iron on slickensides; 20 percent fine and medium prominent irregular yellowish brown (10YR 5/4) masses of oxidized iron throughout; slightly alkaline.

Range in Characteristics

Solum thickness: 40 to 80 inches or more

Clay content in the control section: 60 to 90 percent

Redoximorphic features: Depleted matrix with iron accumulations throughout the solum

Other distinctive soil features: Desiccation cracks up to 1-inch wide open to a depth of 10 to 24 inches or more in most years; COLE ranges from about 0.1 to 0.2 throughout the Bssg and Bkssg horizons; layers with n-value greater than 0.7 are at 60 to 80 inches or more deep

Concentrated minerals: Free carbonates are at 20 to 60 inches or more deep

A or Ap horizon:

Color—hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 or 2

Redoximorphic features—none to few iron accumulations in shades of brown, yellow, or red

Texture—clay

Other features—desiccation cracks

Reaction—moderately acid to moderately alkaline

Thickness—2 to 12 inches

Bg horizon:

Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1, or value of 6 and chroma of 2; or hue of 5Y, value of 4 to 6, and chroma of 1 or 2

Redoximorphic features—few to many iron accumulations in shades of brown, yellow, or red

Texture—silty clay or clay; average clay content ranges from 40 to about 90 percent

Other features—desiccation cracks

Reaction—moderately acid to moderately alkaline

Thickness—6 to 30 inches

Bssg horizon:

Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 1, or value of 6 and chroma of 2; or hue of 5Y, value of 4 to 6, and chroma of 1 or 2

Redoximorphic features—few to many iron accumulations in shades of brown, yellow, or red

Texture—dominantly clay; subhorizons with texture of silty clay are in many pedons; some pedons have thin lenses or strata of silty clay loam or silt loam; average clay content ranges from 60 to about 90 percent

Other features—intersecting slickensides; some pedons have thin lenses or strata of clayey or loamy material with hue of 5YR or redder

Reaction—strongly acid to moderately alkaline

Bkssg horizon:

Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 1, or value of 6 and chroma of 2; or hue of 5Y, value of 4 to 6, and chroma of 1 or 2

Redoximorphic features—few to many iron accumulations in shades of brown, yellow, or red

Texture—clay or silty clay

Other features—intersecting slickensides; soft masses of calcium carbonate range up to 20 percent of the volume

Reaction—neutral to moderately alkaline

Thickness—26 to 60 inches or more (combined thickness of the Bssg and Bkssg horizons)

Ab horizon (where present):

Color—hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 or 2

Redoximorphic features—none

Texture—clay or silty clay

Other features—buried A horizon (where present) is below a depth of 20 inches

Reaction—moderately acid to moderately alkaline

Thickness—0 to 10 inches

Bssg' horizon and BCg or Cg horizon (where present):

Color—hue of 10YR, 2.5Y, 5Y, or 5GY, value of 4 to 6, and chroma of 1 or 2

Redoximorphic features—few to common iron accumulations in shades of brown, yellow, or red

Texture—clay or silty clay; silt loam or silty clay loam below a depth of 40 inches in some pedons

Other features—n-value is more than 0.7 in layers below a depth of 60 inches in some pedons

Reaction—neutral to moderately alkaline

Formation of the Soils

This section explains the factors and processes of soil formation and relates them to the soils in the survey area. Also, this section discusses landforms and surface geology.

Factors of Soil Formation

Soil is a natural, three-dimensional body that forms on the earth's surface. It has properties resulting from the integrated effect of climate and living matter acting on parent material, as conditioned by relief over time. Considered individually, the five factors of soil formation are parent material, climate, living organisms, relief, and time.

Interaction of the five main factors influences the processes of soil formation and results in differences among the soils. The climate during formation of the soil material from the parent material, the physical and chemical composition of the original parent material, the kinds of plants and other organisms living in and on the soil, the relief of the land and its effect on runoff and erosion, and the length of time the soil has had to form all have an effect on what types of properties will be expressed in soils at any given site.

The effect of any one factor can differ from place to place, but the interaction of all the factors will determine the kind of soil that forms. Many of the differences in soils cannot be attributed to differences in only one factor. For example, just the content of organic matter in the soils in St. John the Baptist Parish is influenced by several of the factors, including relief, parent material, and living organisms. In the following paragraphs the factors of soil formation are described individually as they relate to soils in the survey area.

Parent Material

Parent material is the initial material from which soil forms. It affects the chemical and mineralogical composition of the soils. It also influences the degree of leaching, the reaction, texture, permeability, drainage, and the kind and color of the surface and subsoil layers. Relative percentages of sand, silt, and clay in the parent material affect the rate that water moves into and through the soil, and also affect the soil's ability to hold organic humus, air, and soil nutrients in the rooting zone. Generally, soils that form in loamy and sandy parent material have a lower capacity to hold soil nutrients than those that form in clay. The soils in St. John the Baptist Parish formed mainly in alluvial sediments, and many have accumulations of organic material in the upper part. Some are organic throughout.

The alluvium is from distributary streams of former deltas of the Mississippi River (Saucier, 1974). Bordering the stream channels are low ridges called natural levees. These levees are highest next to the channels and slope gradually into backswamps further from the channels. The levees are shaped by waters that overspread the streambanks. When the water slows, it first drops sand, then silt, and finally clay particles. Thus, the soils on the highest parts of natural levees generally formed in more loamy parent material. These soils are generally lighter in color, more

permeable, and better drained than the soils on the lower part of the natural levees and in the backswamps. Cancienne and Carville soils generally are near the crest of natural levees. The soils on the lower part of the natural levees and in the backswamps beyond the natural levees generally formed in more clayey parent material that was deposited by slowly moving water or stagnant backwater. The Barbary, Gramercy, and Schriever soils formed in these types of parent material.

Organic material accumulates in areas that are continuously saturated or flooded. Water prevents the complete oxidation and decomposition of the plant residue. Water, vegetation, and time, coupled with a rise in sea level and land subsidence, created conditions where thick layers of organic material accumulated in the marshes in St. John the Baptist Parish (Morgan, 1972). Until recent time, the buildup of organic material kept pace with land subsidence and sea level rise. The Carlin and Kenner soils formed in thick accumulations of organic material from herbaceous hydrophytic plant remains. The Allemands and Maurepas soils formed in moderately thick accumulations of organic material from herbaceous hydrophytic plant remains overlying clayey alluvium.

Climate

St. John the Baptist Parish has a humid, subtropical climate characteristic of areas near the Gulf of Mexico. The warm, moist climate promotes rapid soil formation. Only slight variations in rainfall and temperature occur within the parish. These minor climatic differences are not considered enough to create significant soil differences. The seasonal variations in the temperature of the air affect the temperature of the soil within the rooting zone. Due to a relatively high average winter air temperature, soils in St. John the Baptist Parish generally have a mean annual temperature in the rooting zone that is more than 72 degrees F. More specific information about the climate of St. John the Baptist Parish is given in the section "General Nature of the Parish."

Living Organisms

Plant and animal life include plants, bacteria, fungi, and animals and are important in the formation of soils. Among the chemical and physical changes they cause are gains in content of plant nutrients and changes in structure and porosity. Plant roots force openings into the soil and help to increase porosity. As plant roots grow, they break up and rearrange the soil particles. Soil nutrients move from within the soil to plant tissues above the surface layer, and when they die, plant tissues are deposited on the surface of the soil. That organic matter slowly releases the nutrients back into the upper part of the soil. Bacteria and other microorganisms decompose organic matter into humus compounds that help improve the physical condition of the soil. The native plants and their associated complex communities of bacteria and fungi generally have a significant influence on soil formation in St. John the Baptist Parish. Animals, such as crawfish and earthworms, also influence soil formation by mixing the soil. Human activities, such as cultivating crops, channel construction, burning, draining, diking, flooding, paving, and land smoothing, affect the soil. When animals die, they too decompose and enrich the soil with organic matter and nutrients.

The soils on the natural levees along streams formed under bottomland hardwood forest vegetation. Soils in the swamps formed under woody and herbaceous vegetation, and soils in the marsh formed under grass and sedge vegetation (Charbreck, 1972). The organic layers present in soils in the hardwood swamps and freshwater marshes formed in organic material from freshwater woody and herbaceous hydrophytic plants. The Barbary and Schriever soils are examples of soils

in hardwood swamps. The Kenner-Allemands-Carlin general soil map unit is in freshwater marshes.

Relief

Relief and other physiographic features influence soil formation processes mainly by affecting internal soil drainage, runoff, erosion and deposition, salinity levels, and exposure to the sun and wind.

In St. John the Baptist Parish, sediment accumulated at a much faster rate than the erosion took place. This accumulation of sediment has occurred at a faster rate than many of the processes of soil formation. This is evident in the distinct stratification in lower horizons of some soils. Levee construction and other water-control measures may have reversed this trend for such soils as the Cancienne soils. Soil slope and rate of runoff are low enough that erosion is not a major problem in the parish.

The land surface of the parish is level or nearly level. The slope is less than 1 percent, except on a few sandy and loamy ridges where the slope is as much as 3 percent. Relief and the landscape position have influenced formation of the different soils. Characteristically, the slopes are long and extend from the highest elevation on natural levees along rivers, bayous, or distributary channels to an elevation that is several feet lower in the swamps and marshes.

Differences in the Allemands, Cancienne, Carville, and Schriever soils illustrate the influence of relief on the soils in the parish. Cancienne and Carville soils are on the highest elevation, contain the least amount of clay, and have the best natural drainage. Schriever soils are on the lower parts of the natural levees, have a high content of clay, and are poorly drained. Allemands soils are in the lower positions, are very poorly drained, and are ponded most of the time unless they are artificially drained. Allemands soils have a thick organic surface layer over clayey underlying material. Areas of Allemands soils that are protected by levees and drained now are at elevations as low as 3 feet below sea level due to subsidence.

The soils on lower positions on the landscape receive runoff from those on higher positions, and the soils remain saturated nearer to the surface for longer periods. In many areas, suitable outlets do not exist to allow the water to move out of these areas readily. Differences in the content of organic matter in the soils are related to the length of time the soils remain saturated, and consequently to relief. The content of organic matter generally increases as the length of time the soil remains saturated increases, and at some point, a layer of partially decomposed organic matter will begin to accumulate on the surface. Soils on higher positions on the landscape, such as the Cancienne soils, have more rapid surface runoff and better internal drainage and aeration.

Time

Time influences the kinds of horizons and their degree of development. Long periods are generally required for prominent horizons to form.

In general, the soils in St. John the Baptist Parish are young, and time has been too short for distinct horizons to develop. Soils on the natural levees of streams, such as the Cancienne soils, have been influenced by soil-forming processes longest but have developed only faintly differentiated horizons. Development is evident mainly by development of structural aggregates and some illuviation of clay into the subsoil layer. Stratification that was present when the sediments were deposited is no longer evident, and organic carbon has become more evenly distributed throughout the subsoil and substratum layers. These soils developed in alluvium that is about 2,000 years old (Saucier, 1974).

The youngest soils in the parish have little or no profile development. For example, in Carville soils, recent sediments have been deposited to the extent that organic material has not accumulated on the surface, the underlying material still shows evidence of stratification, and no structural aggregates have developed.

Processes of Soil Formation

The processes of soil formation influence the kind and degree of development of soil horizons. Important soil-forming processes are those that result in additions of organic, mineral, and gaseous materials to the soil; losses of these same materials from the soil; translocation of materials from one point to another within the soil; and physical and chemical transformation of mineral and organic material within the soil (Simonson, 1959).

Many processes occur simultaneously. Examples in the survey area include accumulation of organic matter, the development of soil structure, and the leaching of bases from some soil horizons. The contribution of a particular process can change with time. Drainage and water-control systems, for example, can change the length of time some soils are flooded or saturated with water. Some important processes that have contributed to the formation of the soils in St. John the Baptist Parish are discussed in the following paragraphs.

Organic matter has accumulated, has partly decomposed, and has been incorporated into all the soils. The organic accumulations range from the humus in mineral horizons of the Cancienne and Schriever soils to the organic horizons and muck of the Kenner and Maurepas soils in the marshes and swamps. Because most of the organic matter is produced in and above the surface layer, the surface layer is higher in content of organic matter than the deeper horizons. Living organisms decompose, incorporate, and mix organic residue into the soil. Some of the more stable products contribute to darker colors, increased water-holding and cation-exchange capacities, and granulation of the soil.

Processes that result in development of soil structure have occurred in most of the mineral soils. Plant roots and other organisms contribute to the rearrangement of soil material into secondary aggregates. The decomposition products of organic residue and the secretions of organisms serve as cementing agents that help stabilize structural aggregates. Alternate wetting and drying as well as shrinking and swelling contribute to the development of structural aggregates and are particularly effective in soils that have appreciable amounts of clay. Consequently, soil structure is typically most pronounced in the surface horizon, which contains the most organic matter, and in clayey horizons that alternately undergo wetting and drying.

Most of the soils mapped in the parish have horizons in which reduction of iron and manganese compounds is an important process. Reducing conditions prevail for long periods in poorly aerated horizons. Consequently, the relatively soluble reduced forms of iron and manganese predominate over the less soluble oxidized forms. The reduced compounds of these elements produce the gray colors in the Bg and Cg horizons that are characteristic of many of the soils. In the more soluble reduced form, appreciable amounts of iron and manganese can be removed from the soils or translocated by water from one position to another within the soil. Reduced forms of iron and manganese not removed can be reoxidized upon development of oxidizing conditions in the soil. The presence of gray and yellowish or reddish masses indicates alternating oxidizing and reducing conditions in many of the soils.

Water moving through the soil has leached many soluble components from the upper horizon of some of the mineral soils in the parish. The components include any free carbonates that may have been present initially. The carbonates and other more

readily soluble salts have been mostly leached from the soil or moved to lower horizons in the better drained, loamy soils, such as the Cancienne soils. In general, the permanently wet soils in the marshes and swamps have rarely been leached.

Landforms and Surface Geology

The land area in St. John the Baptist Parish occupies about 214 square miles of the Lafourche delta complex in the south central region of the Mississippi River delta plain.

St. John the Baptist Parish is bordered on the east by St. Charles Parish and Lake Pontchartrain, on the west by St. James and Ascension Parishes, on the south by Lafourche Parish, and on the north by Tangipahoa and Livingston Parishes. Several large bodies of water, Lake Pontchartrain, Lake Maurepas, Lac Des Allemands, and numerous smaller water bodies including bays, lakes, and bayous, are within the boundaries of the parish.

The elevation in St. John the Baptist Parish ranges from 19 feet on natural levees in the northern part of the parish to below sea level in backswamps and marshes throughout the parish. In places, the elevation in swamps and marshes has decreased because of oxidation, dewatering, and subsidence.

Geologic Development of the Mississippi Delta Plain

The Mississippi River began constructing deltas about 8,000 years ago when the rate of rise in sea level began to decrease following the latest Pleistocene (Wisconsinian) deglaciation. During the Holocene Epoch, the river shifted its position several times in response to the extension of the delta into the Gulf of Mexico and the resulting decrease in gradient of the river channel. As the gradient decreased, the river sought a new channel with a steeper gradient. St. John the Baptist Parish lies within the south central region of the Mississippi River delta complexes.

The subaerial surface of the parish correlates with the Teche and Lafourche Delta complex. Since the end of the Holocene transgressive, the Mississippi River Delta has been shaped by a process of sequential episodes of delta building followed by abandonment and barrier shoreline generation, collectively known as a delta cycle (Frazier, 1967; Gagliano and others, 1981; Kolb, 1962). Individual deltas are built through a regressive or constructive phase followed by a transgressive or destructive phase.

The delta plain consists of six major Holocene delta complexes. Each of the complexes initially experienced a constructive phase and then underwent a destructive phase. Four of these complexes are in various stages of deterioration, and the other two, the Plaquemines Modern and the Atchafalaya complexes, are actively prograding or outbuilding.

The constructive phase begins when a platform is developed as sediment is dispersed at the mouth of a river and deposited onto the inner continental shelf. The platform is thickest adjacent to the channel or distributary. Fine sand and silt accumulate mainly on natural levees flanking the channels and distributaries, and in crevasse splays that form when levees are breached during floods.

In St. John the Baptist Parish, natural levees have formed along the Mississippi River and the Vacherie Canal in the vicinity of the Gold Star Plantation. Areas of natural levees make up about 23.9 percent of the land in the parish. Natural levees generally are the highest elevations in the parish. The Cancienne-Carville general soil map unit is on the higher parts of the natural levees while the Gramercy-Schriever general soil map unit is on the lower parts of the natural levees. As the natural levees

are built, they confine increasingly greater amounts of water until only high floods are capable of overtopping the levees. These natural levees allow the flood plain to become more stabilized, and for distinct backswamp areas to form.

The natural levees afford some protection to the backswamp areas from higher velocity channel flooding, yet slowly moving water can still back-flow into these areas through breaches in the natural levees and may remain stagnant there for long periods afterwards. This situation facilitates soil building by allowing clays to settle out and for organic matter to accumulate more rapidly in the backswamp areas. Backswamps make up about 60.1 percent of the land in the St. John the Baptist Parish. Some areas of backswamp have been drained and are developed for industrial or residential use. The Barbary general soil map unit is in backswamps.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

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.

Alluvial fan. A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl. A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Anaerobic. A situation in which molecular oxygen is virtually absent from the environment.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Artificial hydric soil. A soil that meets the definition of a hydric soil as a result of an artificially induced hydrologic regime and did not meet the definition before the artificial measures were applied.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

- Backswamp.** A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.
- Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.
- Bedding plane.** A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology) from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.
- Bottom land.** An informal term loosely applied to various portions of a flood plain.
- Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.
- Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.
- Canopy.** The leafy crown of trees or shrubs. (See Crown.)
- 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 and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.
- Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.
- Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.
- Chemical treatment.** Control of unwanted vegetation through the use of chemicals.
- 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 depletions.** See Redoximorphic features.
- 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.
- Climax plant community.** 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 textured soil.** Sand or loamy sand.
- COLE (coefficient of linear extensibility).** See Linear extensibility.
- Colluvium.** Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.
- Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. See Redoximorphic features.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion (geomorphology). A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations). Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delta. A body of alluvium having a surface that is fan shaped and nearly flat; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water

regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained*, *somewhat excessively drained*, *well drained*, *moderately well drained*, *somewhat poorly drained*, *poorly drained*, and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Drained. A condition in which ground or surface water has been removed by artificial means.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

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.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the oven-dry 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.

First bottom. An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flood plain. The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flooded. A condition in which the soil surface is temporarily covered with flowing water from any source, such as streams overflowing their banks, runoff from adjacent or surrounding slopes, inflow from the high tides, or any combination of sources.

Fluvial. Of or pertaining to rivers or streams; produced by stream or river action.

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest industry land. Lands owned by companies or individuals operating wood-using plants (either primary or secondary).

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Frequently flooded, ponded, saturated. A frequency class in which flooding, ponding, or saturation is likely to occur often under usual weather conditions (more than 50 percent chance in any year, or more than 50 times in 100 years).

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.

Gilgai. Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

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. Water filling all the unblocked pores of the material below the water table.

Growing season. The portion of the year when soil temperatures are above biologic zero at 50 cm (19.7 in). The following growing season months are assumed for each of the soil temperature regimes of soil taxonomy:

Isohyperthermic	January-December
Hyperthermic	February-December
Isothermic	January-December
Thermic	February-October
Isomesic	January-December
Mesic	March-October
Frigid	May-September
Cryic	June-August
Pergelic	July-August

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation

of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

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 potential.

The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Hydrophytic vegetation. Plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

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.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

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

Intermittent stream. A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. See Redoximorphic features.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

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.

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.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

K_{sat} . Saturated hydraulic conductivity. (See Permeability.)

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $1/3$ - or $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

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.

Long duration. A duration class in which inundation for a single event ranges from 7 days to 1 month.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Masses. See Redoximorphic features.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

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.

Miscellaneous area. A kind of map unit that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

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.

Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. See Redoximorphic features.

Nonindustrial private land (corporate). Lands privately owned by private corporations other than forest industries and incorporated farms.

Nonindustrial private land (individual). Lands privately owned by individuals other than forest industries, farmers, or miscellaneous private corporations.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch

Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponded. A condition in which water stands in a closed depression. The water is removed only by percolation, evaporation, or transpiration.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly drained. Water is removed from the soil so slowly that the soil is saturated periodically during the growing season or remains wet for long periods.

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.

Pore linings. See Redoximorphic features.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. See Redoximorphic features.

Redoximorphic depletions. See Redoximorphic features.

Redoximorphic features. Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
 - A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
 - B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
 - C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chroma less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
 - A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
 - B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletons).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

Regolith. All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief. The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Rill. A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

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.

Saturated. A condition in which all voids (pores) between soil particles are filled with water.

Saturated hydraulic conductivity (K_{sat}). See Permeability.

Saturation. Wetness characterized by zero or positive pressure of the soil water.

Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

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. All the soils of a given 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 (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level	0 to 1 percent
Nearly level	0 to 3 percent
Very gently sloping	1 to 3 percent

Classes for complex slopes are as follows:

Gently undulating	0 to 3 percent
Undulating	3 to 8 percent

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

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 and by the passage 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

Soil series. A group of soils having horizons similar in differentiating characteristics and arrangements in the soil profile, except for texture of the surface layer.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Somewhat poorly drained. Water is removed slowly enough that the soil is wet for significant periods during the growing season.

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. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

- 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. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.
- 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."
- Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
- 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.
- Variiegation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.
- Very long duration.** A duration class in which inundation for a single event is greater than 1 month.
- 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.
- Water table.** The upper surface of ground water where the water is at atmospheric pressure.
- Weathering.** All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered 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 oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.
- Windthrow.** The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation
(Recorded in the period 1971-2000 at New Orleans, Louisiana)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snow- fall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>Units</u>	<u>In</u>	<u>In</u>	<u>In</u>	<u>In</u>	
January	61.7	41.0	51.3	80	20	358	6.23	2.90	8.79	7	0.0
February	64.9	43.8	54.3	81	24	400	5.42	1.99	8.53	6	0.1
March	71.7	50.7	61.2	85	29	646	5.82	3.61	7.64	6	0.0
April	77.9	56.4	67.1	88	39	783	5.12	1.41	8.56	4	0.0
May	84.6	64.2	74.4	93	50	1,011	5.37	2.01	8.38	6	0.0
June	89.4	70.4	79.9	96	59	1,161	6.67	3.06	10.08	8	0.0
July	91.3	72.6	82.0	98	66	1,270	6.42	4.10	8.73	10	0.0
August	91.1	72.2	81.6	98	65	1,270	5.40	2.85	7.69	8	0.0
September	87.5	68.5	78.0	96	52	1,122	5.70	2.32	8.85	7	0.0
October	79.6	57.8	68.7	92	39	868	3.39	1.62	4.86	4	0.0
November	71.1	49.8	60.4	86	31	592	4.85	1.79	7.82	5	0.0
December	64.3	43.1	53.7	82	22	411	4.65	3.04	6.17	6	0.0
Yearly: Average	77.9	57.5	67.7	---	---	---	----	----	----	---	---
Extreme	103.0	9.0	---	99	18	---	----	----	----	---	---
Total	---	---	---	---	---	9,891	65.03	53.17	74.62	77	0.1

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (Threshold : 40 degrees F).

Table 2.--Freeze Dates in Spring and Fall
 (Recorded in the period 1961-1987 at New Orleans, Louisiana)

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--	February 16	March 3	March 18
2 years in 10 later than--	February 9	February 24	March 10
5 years in 10 later than--	January 23	February 10	February 24
First freezing temperature in fall:			
1 year in 10 earlier than--	December 1	November 17	November 4
2 years in 10 earlier than--	December 11	November 25	November 11
5 years in 10 earlier than--	December 29	December 11	November 25

Table 3.--Growing Season
 (Recorded in the period 1971-2000 at New Orleans, Louisiana)

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	319	282	265
8 years in 10	349	301	274
5 years in 10	> 365	343	291
2 years in 10	> 365	> 365	308
1 year in 10	> 365	> 365	316

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

Map symbol	Soil name	Acres	Percent
Ba	Barbary soils, frequently flooded-----	67,618	30.7
CmA	Cancienne silt loam, 0 to 1 percent slopes-----	11,915	5.4
CnA	Cancienne silty clay loam, 0 to 1 percent slopes-----	1,920	0.9
CT	Cancienne and Carville soils, gently undulating, frequently flooded-----	6,248	2.8
CU	Allemands and Carlin mucks, very frequently flooded-----	2,949	1.3
CvA	Carville silt loam, undulating-----	6,534	3.0
GrA	Gramercy silty clay, 0 to 1 percent slopes-----	7,432	3.4
IP	Industrial waste pits-----	733	0.3
Ke	Kenner muck, very frequently flooded-----	8,034	3.6
LP	Levees-Borrow pits complex, 0 to 25 percent slopes-----	1,176	0.5
Ma	Maurepas muck, frequently flooded-----	11,431	5.2
SkA	Schriever clay, 0 to 1 percent slopes-----	5,439	2.5
Sm	Schriever clay, frequently flooded-----	4,979	2.3
UL	Urban land-----	1,858	0.8
W	Water-----	82,234	37.3
	Total-----	220,500	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. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Bahiagrass	Corn	Cotton lint	Soybeans	Sugarcane
		<u>AUM*</u>	<u>Bu</u>	<u>Lbs</u>	<u>Bu</u>	<u>Tons</u>
Ba: Barbary-----	8w	---	---	---	---	---
CmA, CnA: Cancienne-----	2w	---	95.00	900.00	40.00	35.00
CT: Cancienne-----	5w	---	---	---	---	---
Carville-----	5w	---	---	---	---	---
CU: Allemands-----	8w	---	---	---	---	---
Carlin-----	8w	---	---	---	---	---
CvA: Carville-----	2w	---	95.00	875.00	40.00	32.00
GrA: Gramercy-----	3w	8.00	---	---	33.00	30.00
IP. Industrial waste pits						
Ke: Kenner-----	8w	---	---	---	---	---
LP: Levees-----	6e	---	---	---	---	---
Borrow pits-----	7w	---	---	---	---	---
Ma: Maurepas-----	8w	---	---	---	---	---
SkA: Schriever-----	3w	---	---	650.00	40.00	---
Sm: Schriever-----	5w	---	---	650.00	40.00	---
UL. Urban land						
W. Water						

* 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 10 days.

Table 6.--Forest Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available.)

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
Ba:				
Barbary-----	baldcypress-----	80	57	baldcypress
	black willow-----	---	0	
	water tupelo-----	60	86	
CmA, CnA:				
Cancienne-----	American sycamore---	---	0	cherrybark oak,
	eastern cottonwood--	120	186	pecan, Shumard
	green ash-----	100	100	oak, water oak
	Nuttall oak-----	90	0	
	pecan-----	---	0	
	water oak-----	110	114	
	willow oak-----	---	0	
CT:				
Cancienne-----	eastern cottonwood--	113	172	American sycamore,
	Nuttall oak-----	---	0	eastern cottonwood
	overcup oak-----	---	0	
	sugarberry-----	---	0	
	water hickory-----	---	0	
Carville-----	eastern cottonwood--	105	143	American sycamore,
	Nuttall oak-----	---	0	eastern cottonwood
	overcup oak-----	---	0	
	sugarberry-----	---	0	
	water hickory-----	---	0	
CvA:				
Carville-----	American sycamore---	---	0	American sycamore,
	eastern cottonwood--	120	186	eastern cottonwood
	green ash-----	80	57	
	Nuttall oak-----	90	0	
	pecan-----	---	0	
	sweetgum-----	110	172	
	water oak-----	---	0	
GrA:				
Gramercy-----	green ash-----	80	57	American sycamore,
	Nuttall oak-----	---	0	eastern
	pecan-----	---	0	cottonwood,
	sweetgum-----	90	100	sweetgum
	water oak-----	90	86	
	willow oak-----	---	0	
SkA:				
Schriever-----	green ash-----	---	0	green ash, Nuttall
	Nuttall oak-----	98	0	oak
	overcup oak-----	---	0	
	sugarberry-----	---	---	
	sweetgum-----	90	100	
	water hickory-----	---	---	

Table 6.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
Sm: Schriever-----	baldcypress-----	96	---	baldcypress
	black willow-----	90	0	
	green ash-----	---	0	
	overcup oak-----	---	---	
	sugarberry-----	---	---	
	sweetgum-----	---	0	
	water hickory-----	---	---	

Table 7a.--Forest Management

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

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ba: Barbary-----	94	Severe Flooding Low strength Wetness Stickiness/slope	1.00 1.00 1.00 0.50	Poorly suited Ponding Flooding Low strength Stickiness; high plasticity index	1.00 1.00 1.00 0.50	Severe Low strength Wetness	1.00 0.50
CmA: Cancienne-----	80	Moderate Low strength	0.50	Moderately suited Low strength	0.50	Severe Low strength	1.00
CnA: Cancienne-----	87	Moderate Low strength	0.50	Moderately suited Low strength	0.50	Severe Low strength	1.00
CT: Cancienne-----	58	Severe Flooding Low strength	1.00 0.50	Poorly suited Flooding Low strength	1.00 0.50	Severe Low strength	1.00
Carville-----	42	Severe Flooding Low strength	1.00 0.50	Poorly suited Flooding Low strength Wetness	1.00 0.50 0.50	Severe Low strength	1.00
CU: Allemands-----	60	Severe Flooding Wetness Stickiness/slope	1.00 1.00 0.50	Poorly suited Ponding Flooding Low strength Wetness	1.00 1.00 1.00 1.00	Severe Low strength Wetness	1.00 0.50
Carlin-----	40	Severe Flooding Low strength Wetness Stickiness/slope	1.00 1.00 1.00 0.50	Poorly suited Ponding Flooding Low strength Wetness	1.00 1.00 1.00 1.00	Severe Low strength Wetness	1.00 0.50
CvA: Carville-----	100	Moderate Low strength	0.50	Moderately suited Low strength Wetness	0.50 0.50	Severe Low strength	1.00
GrA: Gramercy-----	92	Moderate Low strength	0.50	Moderately suited Wetness Low strength Stickiness; high plasticity index	0.50 0.50 0.50	Severe Low strength	1.00
IP: Industrial waste pits-----	100	Not rated		Not rated		Not rated	

Table 7a.--Forest Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ke:							
Kenner-----	100	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00	Wetness	0.50
		Stickiness/slope	0.50	Low strength	1.00		
				Wetness	1.00		
LP:							
Levees-----	60	Not rated		Not rated		Not rated	
Borrow pits-----	40	Not rated		Not rated		Not rated	
Ma:							
Maurepas-----	90	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00	Wetness	0.50
		Stickiness/slope	0.50	Low strength	1.00		
				Wetness	1.00		
SkA:							
Schriever-----	95	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
				Stickiness; high plasticity index	0.50		
Sm:							
Schriever-----	100	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	0.50		
		Stickiness/slope	0.50	Stickiness; high plasticity index	0.50		
				Low strength	0.50		
UL:							
Urban land-----	100	Not rated		Not rated		Not rated	
W:							
Water-----	100	Not rated		Not rated		Not rated	

Table 7b.--Forest Management

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

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ba: Barbary-----	94	Slight		Slight		Poorly suited Ponding Flooding Low strength Stickiness; high plasticity index	1.00 1.00 1.00 0.50
CmA: Cancienne-----	80	Slight		Slight		Moderately suited Low strength	0.50
CnA: Cancienne-----	87	Slight		Slight		Moderately suited Low strength	0.50
CT: Cancienne-----	58	Slight		Slight		Poorly suited Flooding Low strength	1.00 0.50
Carville-----	42	Slight		Slight		Poorly suited Flooding Low strength Wetness	1.00 0.50 0.50
CU: Allemands-----	60	Very Severe Organic matter content high	1.00	Very Severe Organic matter content high	1.00	Poorly suited Ponding Flooding Low strength Wetness	1.00 1.00 1.00 1.00
Carlin-----	40	Very Severe Organic matter content high	1.00	Very Severe Organic matter content high	1.00	Poorly suited Ponding Flooding Low strength Wetness	1.00 1.00 1.00 1.00
CvA: Carville-----	100	Slight		Slight		Moderately suited Low strength Wetness	0.50 0.50
GrA: Gramercy-----	92	Slight		Slight		Moderately suited Wetness Low strength Stickiness; high plasticity index	0.50 0.50 0.50
IP: Industrial waste pits-----	100	Not rated		Not rated		Not rated	

Table 7b.--Forest Management--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ke: Kenner-----	100	Very Severe Organic matter content high	1.00	Very Severe Organic matter content high	1.00	Poorly suited Ponding Flooding Low strength Wetness	1.00 1.00 1.00 1.00
LP: Levees-----	60	Not rated		Not rated		Not rated	
Borrow pits-----	40	Not rated		Not rated		Not rated	
Ma: Maurepas-----	90	Very Severe Organic matter content high	1.00	Very Severe Organic matter content high	1.00	Poorly suited Ponding Flooding Low strength Wetness	1.00 1.00 1.00 1.00
SkA: Schriever-----	95	Slight		Slight		Moderately suited Wetness Low strength Stickiness; high plasticity index	0.50 0.50 0.50
Sm: Schriever-----	100	Slight		Slight		Poorly suited Flooding Wetness Stickiness; high plasticity index Low strength	1.00 0.50 0.50 0.50
UL: Urban land-----	100	Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated	

Table 7c.--Forest Management

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

Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ba: Barbary-----	94	Poorly suited Wetness Stickiness; high plasticity index	0.75 0.75	Poorly suited Stickiness; high plasticity index Wetness	0.75 0.75	Poorly suited Low strength Wetness Stickiness; high plasticity index	1.00 1.00 0.50
CmA: Cancienne-----	80	Well suited		Well suited		Moderately suited Low strength	0.50
CnA: Cancienne-----	87	Moderately suited Stickiness; high plasticity index	0.50	Moderately suited Stickiness; high plasticity index	0.50	Moderately suited Low strength	0.50
CT: Cancienne-----	58	Moderately suited Stickiness; high plasticity index	0.50	Moderately suited Stickiness; high plasticity index	0.50	Moderately suited Low strength	0.50
Carville-----	42	Well suited		Well suited		Moderately suited Low strength	0.50
CU: Allemands-----	60	Poorly suited Wetness Rock fragments	0.75 0.50	Poorly suited Rock fragments Wetness	0.75 0.75	Poorly suited Low strength Wetness	1.00 1.00
Carlin-----	40	Poorly suited Wetness	0.75	Poorly suited Wetness	0.75	Poorly suited Low strength Wetness	1.00 1.00
CvA: Carville-----	100	Well suited		Well suited		Moderately suited Low strength	0.50
GrA: Gramercy-----	92	Poorly suited Stickiness; high plasticity index	0.75	Poorly suited Stickiness; high plasticity index	0.75	Moderately suited Low strength Stickiness; high plasticity index	0.50 0.50
IP: Industrial waste pits-----	100	Not rated		Not rated		Not rated	
Ke: Kenner-----	100	Poorly suited Wetness	0.75	Poorly suited Wetness	0.75	Poorly suited Low strength Wetness	1.00 1.00

Table 7c.--Forest Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LP: Levees-----	60	Not rated		Not rated		Not rated	
Borrow pits-----	40	Not rated		Not rated		Not rated	
Ma: Maurepas-----	90	Poorly suited Wetness	0.75	Poorly suited Wetness	0.75	Poorly suited Low strength Wetness	1.00 1.00
SkA: Schriever-----	95	Poorly suited Stickiness; high plasticity index	0.75	Poorly suited Stickiness; high plasticity index	0.75	Moderately suited Low strength Stickiness; high plasticity index	0.50 0.50
Sm: Schriever-----	100	Poorly suited Stickiness; high plasticity index	0.75	Poorly suited Stickiness; high plasticity index	0.75	Moderately suited Low strength Stickiness; high plasticity index	0.50 0.50
UL: Urban land-----	100	Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated	

Table 7d.--Forest Management

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

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)		Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ba: Barbary-----	94	Poorly suited Wetness Stickiness; high plasticity index	0.75 0.50	Unsuited Wetness	1.00	Low		High Wetness	1.00
CmA: Cancienne-----	80	Well suited		Well suited		Low Texture/rock fragments	0.10	Low	
CnA: Cancienne-----	87	Well suited		Well suited		Low Texture/rock fragments	0.10	Low	
CT: Cancienne-----	58	Well suited		Well suited		Low Texture/rock fragments	0.10	High Wetness	1.00
Carville-----	42	Well suited		Well suited		Moderate Texture/rock fragments	0.50	High Wetness	1.00
CU: Allemands-----	60	Poorly suited Wetness Rock fragments	0.75 0.50	Unsuited Wetness	1.00	Low		High Wetness	1.00
Carlin-----	40	Poorly suited Wetness	0.75	Unsuited Wetness	1.00	Low		High Wetness	1.00
CvA: Carville-----	100	Well suited		Well suited		Moderate Texture/rock fragments	0.50	Low	

Table 7d.--Forest Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)		Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GrA: Gramercy-----	92	Poorly suited Stickiness; high plasticity index	0.50	Well suited		Moderate Texture/rock fragments	0.50	High Wetness	1.00
IP: Industrial waste pits-----	100	Not rated		Not rated		Not rated		Not rated	
Ke: Kenner-----	100	Poorly suited Wetness	0.75	Unsuited Wetness	1.00	Low		High Wetness	1.00
LP: Levees-----	60	Not rated		Not rated		Not rated		Not rated	
Borrow pits-----	40	Not rated		Not rated		Not rated		Not rated	
Ma: Maurepas-----	90	Poorly suited Wetness	0.75	Unsuited Wetness	1.00	Low		High Wetness	1.00
SkA: Schriever-----	95	Poorly suited Stickiness; high plasticity index	0.50	Well suited		Moderate Texture/rock fragments	0.50	High Wetness	1.00
Sm: Schriever-----	100	Poorly suited Stickiness; high plasticity index	0.50	Well suited		Moderate Texture/surface depth/rock fragments	0.50	High Wetness	1.00
UL: Urban land-----	100	Not rated		Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated		Not rated	

Table 8a.--Recreational Development

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

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ba: Barbary-----	94	Very limited Depth to saturated zone Flooding Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Flooding	1.00 1.00 1.00
CmA: Cancienne-----	80	Somewhat limited Slow water movement	0.21	Somewhat limited Slow water movement	0.21	Somewhat limited Slow water movement	0.21
CnA: Cancienne-----	87	Somewhat limited Slow water movement	0.21	Somewhat limited Slow water movement	0.21	Somewhat limited Slow water movement	0.21
CT: Cancienne-----	58	Very limited Flooding Slow water movement	1.00 0.21	Somewhat limited Flooding Slow water movement	0.40 0.21	Very limited Flooding Slow water movement	1.00 0.21
Carville-----	42	Very limited Flooding Depth to saturated zone	1.00 0.81	Somewhat limited Depth to saturated zone Flooding	0.48 0.40	Very limited Flooding Depth to saturated zone	1.00 0.81
CU: Allemands-----	60	Very limited Depth to saturated zone Flooding Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Organic matter content Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Organic matter content Flooding	1.00 1.00 1.00
Carlin-----	40	Very limited Depth to saturated zone Flooding Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Organic matter content Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Organic matter content Flooding	1.00 1.00 1.00
CvA: Carville-----	100	Somewhat limited Depth to saturated zone	0.81	Somewhat limited Depth to saturated zone	0.48	Somewhat limited Depth to saturated zone Slope	0.81 0.03
GrA: Gramercy-----	92	Very limited Depth to saturated zone Slow water movement Too clayey	1.00 1.00 1.00	Very limited Slow water movement Too clayey Depth to saturated zone	1.00 1.00 0.99	Very limited Depth to saturated zone Slow water movement Too clayey	1.00 1.00 1.00

Table 8a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ke: Kenner-----	60	Very limited Depth to saturated zone Flooding Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Organic matter content Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Organic matter content Flooding	1.00 1.00 1.00
LP: Levees-----	60	Not rated		Not rated		Not rated	
Borrow pits-----	40	Not rated		Not rated		Not rated	
Ma: Maurepas-----	60	Very limited Depth to saturated zone Flooding Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Organic matter content Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Organic matter content Flooding	1.00 1.00 1.00
SkA: Schriever-----	95	Very limited Depth to saturated zone Flooding Slow water movement Too clayey	1.00 1.00 1.00 1.00	Very limited Slow water movement Too clayey Depth to saturated zone	1.00 1.00 0.99	Very limited Depth to saturated zone Slow water movement Too clayey	1.00 1.00 1.00
Sm: Schriever-----	100	Very limited Depth to saturated zone Flooding Slow water movement Too clayey	1.00 1.00 1.00 1.00	Very limited Slow water movement Too clayey Depth to saturated zone Flooding	1.00 1.00 0.99 0.40	Very limited Depth to saturated zone Flooding Slow water movement Too clayey	1.00 1.00 1.00 1.00
UL: Urban land-----	100	Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated	

Table 8b.--Recreational Development

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

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ba: Barbary-----	94	Very limited Too clayey Ponding Flooding	1.00 1.00 1.00	Very limited Too clayey Depth to saturated zone Ponding	1.00 1.00 1.00 1.00	Very limited Too clayey Depth to saturated zone Ponding	1.00 1.00 1.00 1.00
CmA: Cancienne-----	80	Not limited		Not limited		Not limited	
CnA: Cancienne-----	87	Not limited		Not limited		Not limited	
CT: Cancienne-----	58	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
Carville-----	42	Somewhat limited Flooding Depth to saturated zone	0.40 0.11	Somewhat limited Flooding Depth to saturated zone	0.40 0.11	Very limited Flooding Depth to saturated zone	1.00 0.48
CU: Allemands-----	60	Very limited Ponding Organic matter content Flooding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00	Very limited Organic matter content Depth to saturated zone	1.00 1.00
Carlin-----	40	Very limited Ponding Organic matter content Flooding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00	Very limited Organic matter content Depth to saturated zone	1.00 1.00
CvA: Carville-----	100	Somewhat limited Depth to saturated zone	0.11	Somewhat limited Depth to saturated zone	0.11	Somewhat limited Depth to saturated zone	0.48
GrA: Gramercy-----	92	Very limited Too clayey Depth to saturated zone	1.00 0.99	Very limited Too clayey Depth to saturated zone	1.00 0.99	Very limited Too clayey Depth to saturated zone	1.00 0.99
IP: Industrial waste pits-----	100	Not rated		Not rated		Not rated	

Table 8b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ke: Kenner-----	100	Very limited Ponding Organic matter content Flooding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Organic matter content	1.00 1.00 1.00	Very limited Organic matter content Depth to saturated zone	1.00 1.00
LP: Levees-----	60	Not rated		Not rated		Not rated	
Borrow pits-----	40	Not rated		Not rated		Not rated	
Ma: Maurepas-----	90	Very limited Ponding Organic matter content Flooding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Organic matter content	1.00 1.00 1.00	Very limited Organic matter content Depth to saturated zone	1.00 1.00
SkA: Schriever-----	95	Very limited Too clayey Depth to saturated zone	1.00 0.99	Very limited Too clayey Depth to saturated zone	1.00 0.99	Very limited Too clayey Depth to saturated zone	1.00 0.99
Sm: Schriever-----	100	Very limited Too clayey Depth to saturated zone Flooding	1.00 0.99 0.40	Very limited Too clayey Depth to saturated zone Flooding	1.00 0.99 0.40	Very limited Flooding Too clayey Depth to saturated zone	1.00 1.00 0.99
UL: Urban land-----	100	Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated	

Table 9a.--Wildlife Habitat

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

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover		Domestic grasses and legumes for food and cover		Irrigated grain and seed crops for food and cover		Irrigated domestic grasses and legumes for food and cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ba: Barbary-----	94	Not rated		Not rated		Not rated		Not rated	
CmA: Cancienne-----	80	Somewhat limited Wetness	0.04	Somewhat limited Wetness	0.04	Somewhat limited Wetness	0.04	Somewhat limited Wetness	0.04
CnA: Cancienne-----	87	Somewhat limited Too clayey Wetness	0.43 0.04	Somewhat limited Too clayey Wetness	0.43 0.04	Somewhat limited Too clayey Wetness	0.43 0.04	Somewhat limited Too clayey Wetness	0.43 0.04
CT: Cancienne-----	58	Very limited Flooding Too clayey Wetness	1.00 0.43 0.04	Very limited Flooding Too clayey Wetness	1.00 0.43 0.04	Very limited Flooding Too clayey Wetness	1.00 0.43 0.04	Very limited Flooding Too clayey Wetness	1.00 0.43 0.04
Carville-----	42	Very limited Flooding Wetness	1.00 0.94	Very limited Flooding Wetness	1.00 0.94	Very limited Flooding Wetness	1.00 0.94	Very limited Flooding Wetness	1.00 0.94
CU: Allemands-----	60	Not rated		Not rated		Not rated		Not rated	
Carlin-----	40	Not rated		Not rated		Not rated		Not rated	
CvA: Carville-----	100	Somewhat limited Wetness	0.94	Somewhat limited Wetness	0.94	Somewhat limited Wetness	0.94	Somewhat limited Wetness	0.94
GrA: Gramercy-----	92	Very limited Wetness Too clayey Percs slowly	1.00 1.00 0.50	Very limited Wetness Too clayey Percs slowly	1.00 1.00 0.50	Very limited Wetness Too clayey Percs slowly	1.00 1.00 0.50	Very limited Wetness Too clayey Percs slowly	1.00 1.00

Table 9a.--Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover		Domestic grasses and legumes for food and cover		Irrigated grain and seed crops for food and cover		Irrigated domestic grasses and legumes for food and cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
IP: Industrial waste pits-----	100	Not rated		Not rated		Not rated		Not rated	
Ke: Kenner-----	100	Not rated		Not rated		Not rated		Not rated	
LP: Levees-----	60	Not rated		Not rated		Not rated		Not rated	
Borrow pits-----	40	Not rated		Not rated		Not rated		Not rated	
Ma: Maurepas-----	90	Not rated		Not rated		Not rated		Not rated	
SkA: Schriever-----	95	Very limited Wetness Too clayey Droughty Percs slowly	1.00 1.00 0.74 0.50	Very limited Wetness Too clayey Percs slowly	1.00 1.00 0.50	Very limited Wetness Too clayey Droughty Percs slowly	1.00 1.00 0.74 0.50	Very limited Wetness Too clayey Percs slowly	1.00 1.00 0.50
Sm: Schriever-----	100	Very limited Flooding Wetness Too clayey Droughty Percs slowly	1.00 1.00 1.00 0.84 0.50	Very limited Flooding Wetness Too clayey Percs slowly	1.00 1.00 1.00 0.50	Very limited Flooding Wetness Too clayey Droughty Percs slowly	1.00 1.00 1.00 0.84 0.50	Very limited Flooding Wetness Too clayey Percs slowly	1.00 1.00 1.00 0.50
UL: Urban land-----	100	Not rated		Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated		Not rated	

Table 9b.--Wildlife Habitat

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

Map symbol and soil name	Pct. of map unit	Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees		Upland coniferous trees		Upland mixed deciduous and coniferous trees	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ba: Barbary-----	94	Not rated		Not rated		Very limited Depth to saturated zone	1.00	Very limited Extreme soil temperatures Wetness	1.00 1.00	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
CmA: Cancienne-----	80	Somewhat limited Wetness	0.04	Somewhat limited Extreme soil temperatures Wetness	0.50 0.04	Very limited Depth to saturated zone	1.00	Very limited Extreme soil temperatures Wetness	1.00 0.24	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
CnA: Cancienne-----	87	Somewhat limited Too clayey Wetness	0.43 0.04	Somewhat limited Extreme soil temperatures Too clayey Wetness	0.50 0.43 0.04	Very limited Depth to saturated zone	1.00	Very limited Extreme soil temperatures Wetness	1.00 0.24	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
CT: Cancienne-----	58	Somewhat limited Too clayey Wetness	0.43 0.04	Somewhat limited Extreme soil temperatures Too clayey Wetness	0.50 0.43 0.04	Very limited Depth to saturated zone	1.00	Very limited Extreme soil temperatures Wetness	1.00 0.24	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
Carville-----	42	Somewhat limited Wetness	0.94	Somewhat limited Wetness Extreme soil temperatures	0.94 0.50	Very limited Depth to saturated zone	1.00	Very limited Extreme soil temperatures Wetness	1.00 0.96	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
CU: Allemands-----	60	Not rated		Not rated		Very limited Depth to saturated zone	1.00	Very limited Extreme soil temperatures Wetness	1.00 1.00	Very limited Depth to saturated zone Growing season wetness	1.00 1.00

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees		Upland coniferous trees		Upland mixed deciduous and coniferous trees	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CU: Carlin-----	40	Not rated		Not rated		Very limited Depth to saturated zone	1.00	Very limited Extreme soil temperatures Wetness	1.00 1.00	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
CvA: Carville-----	100	Somewhat limited Wetness	0.94	Somewhat limited Wetness Extreme soil temperatures	0.94 0.50	Very limited Depth to saturated zone	1.00	Very limited Extreme soil temperatures Wetness	1.00 0.96	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
GrA: Gramercy-----	92	Very limited Wetness Too clayey	1.00 1.00	Very limited Too clayey Wetness Extreme soil temperatures	1.00 1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Extreme soil temperatures Wetness	1.00 1.00	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
IP: Industrial waste pits---	100	Not rated		Not rated		Not rated		Not rated		Not rated	
Ke: Kenner-----	100	Not rated		Not rated		Very limited Depth to saturated zone	1.00	Very limited Extreme soil temperatures Wetness	1.00 1.00	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
LP: Levees-----	60	Not rated		Not rated		Not rated		Not rated		Not rated	
Borrow pits---	40	Not rated		Not rated		Not rated		Not rated		Not rated	
Ma: Maurepas-----	90	Not rated		Not rated		Very limited Depth to saturated zone	1.00	Very limited Extreme soil temperatures Wetness	1.00 1.00	Very limited Depth to saturated zone Growing season wetness	1.00 1.00

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees		Upland coniferous trees		Upland mixed deciduous and coniferous trees	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SkA: Schriever-----	95	Very limited Wetness Too clayey	1.00 1.00	Very limited Too clayey Wetness Extreme soil temperatures	1.00 1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Extreme soil temperatures Wetness	1.00 1.00	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
Sm: Schriever-----	100	Very limited Wetness Too clayey	1.00 1.00	Very limited Too clayey Wetness Extreme soil temperatures	1.00 1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Extreme soil temperatures Wetness	1.00 1.00	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
UL: Urban land----	100	Not rated		Not rated		Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 9c.--Wildlife Habitat

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

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ba: Barbary-----	94	Not rated		Very limited Flooding Ponding	1.00 1.00	Somewhat limited Ponding	0.50	Somewhat limited Seepage Ponding	0.77 0.50
CmA: Cancienne----	80	Very limited Infrequent flooding Too dry	1.00 0.98	Not limited		Somewhat limited Too dry Too acid	0.98 0.08	Somewhat limited Too acid Seepage	0.08 0.07
CnA: Cancienne----	87	Very limited Infrequent flooding Too dry	1.00 0.98	Not limited		Somewhat limited Too dry Too acid	0.98 0.08	Somewhat limited Too acid Seepage	0.08 0.01
CT: Cancienne----	58	Somewhat limited Too dry Long flooding	0.98 0.50	Somewhat limited Flooding	0.50	Somewhat limited Too dry Too acid	0.98 0.08	Somewhat limited Too acid Seepage	0.08 0.05
Carville-----	42	Somewhat limited Long flooding Too dry	0.50 0.29	Somewhat limited Flooding	0.50	Somewhat limited Too dry	0.29	Somewhat limited Seepage	0.07
CU: Allemands----	60	Not rated		Very limited Flooding Ponding	1.00 1.00	Somewhat limited Ponding Excess sodium Excess salt	0.50 0.04 0.01	Very limited Seepage Ponding Excess sodium Excess salt	1.00 0.50 0.04 0.01
Carlin-----	40	Not rated		Very limited Flooding Ponding	1.00 1.00	Somewhat limited Ponding Excess humus Excess salt	0.50 0.50 0.01	Very limited Seepage Excess humus Ponding Excess salt	1.00 1.00 0.50 0.01

Table 9c.--Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CvA: Carville-----	100	Very limited Infrequent flooding Too dry	1.00 0.29	Not limited		Somewhat limited Too dry	0.29	Somewhat limited Seepage	0.07
GrA: Gramercy-----	92	Very limited Infrequent flooding Too dry	1.00 0.01	Not limited		Somewhat limited Too dry	0.01	Not limited	
IP: Industrial waste pits--	100	Not rated		Not rated		Not rated		Not rated	
Ke: Kenner-----	100	Not rated		Not rated		Not rated		Not rated	
LP: Levees-----	60	Not rated		Not rated		Not rated		Not rated	
Borrow pits--	40	Not rated		Not rated		Not rated		Not rated	
Ma: Maurepas-----	90	Not rated		Very limited Flooding Ponding	1.00 1.00	Somewhat limited Ponding Excess salt	0.50 0.01	Very limited Seepage Ponding Excess salt	1.00 0.50 0.01
SkA: Schriever----	95	Very limited Infrequent flooding Too dry	1.00 0.01	Not limited		Somewhat limited Too dry	0.01	Not limited	
Sm: Schriever----	100	Somewhat limited Long flooding Too dry	0.50 0.01	Somewhat limited Flooding	0.50	Somewhat limited Too dry	0.01	Not limited	
UL: Urban land---	100	Not rated		Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated		Not rated	

Table 10a.--Building Site Development

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

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ba: Barbary-----	94	Very limited Ponding Flooding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00
CmA: Cancienne-----	80	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to saturated zone Shrink-swell	0.99 0.50	Somewhat limited Shrink-swell	0.50
CnA: Cancienne-----	87	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to saturated zone Shrink-swell	0.99 0.50	Somewhat limited Shrink-swell	0.50
CT: Cancienne-----	58	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.99	Very limited Flooding	1.00
Carville-----	42	Very limited Flooding Depth to saturated zone	1.00 0.81	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.81
CU: Allemands-----	60	Very limited Ponding Subsidence Flooding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Subsidence Flooding Depth to saturated zone	1.00 1.00 1.00 1.00	Very limited Ponding Subsidence Flooding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00 1.00
Carlin-----	40	Very limited Ponding Subsidence Flooding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Subsidence Flooding Depth to saturated zone	1.00 1.00 1.00 1.00	Very limited Ponding Subsidence Flooding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00 1.00
CvA: Carville-----	100	Somewhat limited Depth to saturated zone	0.81	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.81

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GrA: Gramercy-----	92	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
IP: Industrial waste pits-----	100	Not rated		Not rated		Not rated	
Ke: Kenner-----	100	Very limited Ponding Subsidence Flooding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Subsidence Flooding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Subsidence Flooding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00 1.00
LP: Levees-----	60	Not rated		Not rated		Not rated	
Borrow pits-----	40	Not rated		Not rated		Not rated	
Ma: Maurepas-----	90	Very limited Ponding Subsidence Flooding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Subsidence Flooding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Subsidence Flooding Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00 1.00
SkA: Schriever-----	95	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
Sm: Schriever-----	100	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
UL: Urban land-----	100	Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated	

Table 10b.--Building Site Development

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

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ba: Barbary-----	94	Very limited Ponding Depth to saturated zone Flooding Low strength	 1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Organic matter content Flooding	 1.00 1.00 1.00 1.00 0.80	Not rated	
CmA: Cancienne-----	80	Very limited Low strength Shrink-swell	 1.00 0.50	Somewhat limited Depth to saturated zone Cutbanks cave	 0.99 0.10	Not limited	
CnA: Cancienne-----	87	Very limited Low strength Shrink-swell	 1.00 0.50	Somewhat limited Depth to saturated zone Cutbanks cave	 0.99 0.10	Not limited	
CT: Cancienne-----	58	Very limited Flooding Low strength	 1.00 1.00	Somewhat limited Depth to saturated zone Flooding Cutbanks cave	 0.99 0.80 0.10	Very limited Flooding	1.00
Carville-----	42	Very limited Flooding Depth to saturated zone	 1.00 0.48	Very limited Depth to saturated zone Flooding Cutbanks cave	 1.00 0.80 0.10	Very limited Flooding Depth to saturated zone	1.00 0.48
CU: Allemands-----	60	Very limited Ponding Depth to saturated zone Subsidence Flooding	 1.00 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone Too clayey Organic matter content	 1.00 1.00 1.00 1.00 1.00	Not rated	
Carlin-----	40	Very limited Ponding Depth to saturated zone Subsidence Flooding	 1.00 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone Too clayey Organic matter content	 1.00 1.00 1.00 1.00 1.00	Not rated	

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CvA: Carville-----	100	Somewhat limited Depth to saturated zone	0.48	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.48
GrA: Gramercy-----	92	Very limited Shrink-swell Low strength Depth to saturated zone	1.00 1.00 0.99	Very limited Depth to saturated zone Cutbanks cave Too clayey	1.00 1.00 1.00 0.28	Very limited Too clayey Depth to saturated zone	1.00 0.99
IP: Industrial waste pits-----	100	Not rated		Not rated		Not rated	
Ke: Kenner-----	100	Very limited Ponding Depth to saturated zone Subsidence Flooding	1.00 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone Too clayey Organic matter content	1.00 1.00 1.00 1.00 1.00	Not rated	
LP: Levees-----	60	Not rated		Not rated		Not rated	
Borrow pits-----	40	Not rated		Not rated		Not rated	
Ma: Maurepas-----	90	Very limited Ponding Depth to saturated zone Subsidence Flooding	1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Organic matter content Flooding	1.00 1.00 1.00 1.00 0.80	Not rated	
SkA: Schriever-----	95	Very limited Shrink-swell Low strength Depth to saturated zone Flooding	1.00 1.00 0.99 0.40	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 1.00 1.00 1.00	Very limited Too clayey Depth to saturated zone	1.00 0.99
Sm: Schriever-----	100	Very limited Shrink-swell Flooding Low strength Depth to saturated zone	1.00 1.00 1.00 0.99	Very limited Depth to saturated zone Too clayey Cutbanks cave Flooding	1.00 1.00 1.00 1.00 0.80	Very limited Flooding Too clayey Depth to saturated zone	1.00 1.00 0.99
UL: Urban land-----	100	Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated	

Table 11.--Sanitary Facilities

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

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value						
Ba: Barbary-----	94	Very limited Flooding	1.00	Very limited Ponding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Ponding	1.00
		Slow water movement	1.00	Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Depth to saturated zone	1.00	Organic matter content	1.00	Too clayey	1.00	Organic matter content	1.00	Hard to compact	1.00
CmA: Cancienne----	80	Very limited Depth to saturated zone	1.00	Somewhat limited Too clayey	0.50						
		Slow water movement	1.00	Seepage	0.53	Too clayey	0.50			Depth to saturated zone	0.24
CnA: Cancienne----	87	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.24						
		Slow water movement	1.00	Seepage	0.28						
CT: Cancienne----	58	Very limited Flooding	1.00	Somewhat limited Depth to saturated zone	0.24						
		Depth to saturated zone	1.00								
		Slow water movement	0.72	Seepage	0.28						
Carville-----	42	Very limited Flooding	1.00	Somewhat limited Depth to saturated zone	0.96						
		Depth to saturated zone	1.00								
		Slow water movement	0.46	Seepage	0.53						

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CU: Allemands----	60	Very limited Flooding Slow water movement Ponding Depth to saturated zone Subsidence	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Ponding Flooding Seepage Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Ponding Too clayey	1.00 1.00 1.00 1.00	Very limited Flooding Ponding Depth to saturated zone Seepage	1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00 1.00
Carlin-----	40	Very limited Flooding Slow water movement Ponding Depth to saturated zone Subsidence	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Flooding Seepage Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Ponding Too clayey	1.00 1.00 1.00	Very limited Flooding Ponding Depth to saturated zone Seepage	1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00 1.00
CvA: Carville-----	100	Very limited Depth to saturated zone Slow water movement	1.00 0.46	Very limited Depth to saturated zone Seepage Slope	1.00 0.53 0.02	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.96
GrA: Gramercy-----	92	Very limited Slow water movement Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00
IP: Industrial waste pits--	100	Not rated		Not rated		Not rated		Not rated		Not rated	
Ke: Kenner-----	100	Very limited Flooding Slow water movement Ponding Depth to saturated zone Subsidence	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Flooding Seepage Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Ponding Seepage, bottom layer Organic matter content	1.00 1.00 1.00 1.00	Very limited Flooding Ponding Depth to saturated zone Seepage	1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Seepage Organic matter content	1.00 1.00 1.00 1.00

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LP: Levees-----	60	Not rated		Not rated		Not rated		Somewhat limited Slope	0.84	Not rated	
Borrow pits--	40	Not rated		Not rated		Not rated		Very limited Depth to saturated zone Flooding	1.00 0.40	Not rated	
Ma: Maurepas-----	90	Very limited Flooding Slow water movement Ponding Depth to saturated zone Subsidence	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Flooding Seepage Depth to saturated zone Organic matter content	1.00 1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Ponding Organic matter content	1.00 1.00 1.00 1.00 1.00	Very limited Flooding Ponding Depth to saturated zone Seepage	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Seepage Organic matter content	1.00 1.00 1.00 1.00 1.00
SkA: Schriever----	95	Very limited Slow water movement Depth to saturated zone Flooding	1.00 1.00 1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Too clayey Flooding	1.00 1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00
Sm: Schriever----	100	Very limited Flooding Slow water movement Depth to saturated zone	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone Too clayey	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00
UL: Urban land---	100	Not rated		Not rated		Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 12.--Construction and Excavating Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ba: Barbary-----	94	Poor Too clayey	0.00	Poor Wetness depth Low strength	0.00 0.00	Poor Too clayey Wetness depth	0.00 0.00
CmA: Cancienne-----	80	Fair Too acid Organic matter content low Water erosion	0.80 0.88 0.90	Poor Low strength Shrink-swell Wetness depth	0.00 0.97 0.98	Fair Wetness depth	0.98
CnA: Cancienne-----	87	Fair Too acid Organic matter content low Water erosion	0.80 0.88 0.99	Poor Low strength Wetness depth Shrink-swell	0.00 0.98 0.98	Fair Wetness depth	0.98
CT: Cancienne-----	58	Fair Too acid Organic matter content low Water erosion	0.80 0.88 0.99	Poor Low strength Wetness depth	0.00 0.98	Fair Wetness depth	0.98
Carville-----	42	Fair Organic matter content low Water erosion	0.88 0.90	Fair Wetness depth	0.29	Fair Wetness depth	0.29
CU: Allemands-----	60	Fair Sodium content	0.60	Poor Wetness depth Low strength	0.00 0.00	Not rated	
Carlin-----	40	Good		Poor Wetness depth Low strength	0.00 0.00	Not rated	
CvA: Carville-----	100	Fair Organic matter content low Water erosion	0.88 0.90	Fair Wetness depth	0.29	Fair Wetness depth	0.29
GrA: Gramercy-----	92	Poor Too clayey Organic matter content low Water erosion	0.00 0.88 0.99	Poor Shrink-swell Low strength Wetness depth	0.00 0.00 0.00	Poor Too clayey Wetness depth	0.00 0.00
IP: Industrial waste pits-----	100	Not rated		Not rated		Not rated	

Table 12.--Construction and Excavating Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ke: Kenner-----	100	Good		Poor Wetness depth	0.00	Not rated	
LP: Levees-----	60	Not rated		Not rated		Not rated	
Borrow pits-----	40	Not rated		Not rated		Not rated	
Ma: Maurepas-----	90	Good		Poor Wetness depth	0.00	Not rated	
SkA: Schriever-----	95	Poor Too clayey Organic matter content low	0.00 0.12	Poor Low strength Shrink-swell Wetness depth	0.00 0.00 0.00	Poor Too clayey Wetness depth	0.00 0.00
Sm: Schriever-----	100	Poor Too clayey Organic matter content low	0.00 0.12	Poor Low strength Shrink-swell Wetness depth	0.00 0.00 0.00	Poor Too clayey Wetness depth	0.00 0.00
UL: Urban land-----	100	Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated	

Table 13.--Water Management

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

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ba: Barbary-----	94	Not limited		Not rated		Somewhat limited Cutbanks cave	0.10
CmA: Cancienne-----	80	Somewhat limited Seepage	0.72	Somewhat limited Depth to saturated zone Piping	0.68 0.05	Somewhat limited Slow refill Depth to saturated zone Cutbanks cave	0.46 0.14 0.10
CnA: Cancienne-----	87	Somewhat limited Seepage	0.54	Somewhat limited Depth to saturated zone Piping	0.68 0.01	Somewhat limited Slow refill Depth to saturated zone Cutbanks cave	0.46 0.14 0.10
CT: Cancienne-----	58	Somewhat limited Seepage	0.54	Somewhat limited Depth to saturated zone Piping	0.68 0.01	Somewhat limited Slow refill Depth to saturated zone Cutbanks cave	0.46 0.14 0.10
Carville-----	42	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone Piping	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
CU: Allemands-----	60	Very limited Seepage	1.00	Not rated		Somewhat limited Cutbanks cave	0.10
Carlin-----	40	Very limited Seepage	1.00	Not rated		Somewhat limited Cutbanks cave	0.10
CvA: Carville-----	100	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone Piping	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
GrA: Gramercy-----	92	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.52	Very limited Slow refill Cutbanks cave	1.00 0.10
IP: Industrial waste pits-----	100	Not rated		Not rated		Not rated	

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ke: Kenner-----	100	Very limited Seepage	1.00	Not rated		Somewhat limited Cutbanks cave	0.10
LP: Levees-----	60	Very limited Slope	1.00	Not rated		Not rated	
Borrow pits-----	40	Not limited		Not rated		Not rated	
Ma: Maurepas-----	90	Very limited Seepage	1.00	Not rated		Somewhat limited Cutbanks cave	0.10
SkA: Schriever-----	95	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 1.00	Very limited Slow refill Cutbanks cave	1.00 0.10
Sm: Schriever-----	100	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 1.00	Very limited Slow refill Cutbanks cave	1.00 0.10
UL: Urban land-----	100	Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated	

Table 14.--Engineering Index Properties

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

Map symbol and soil name	Horizon	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	4	10	40	200		
		<u>In</u>									
Ba: Barbary-----	Oa	0-10	Mucky clay, muck	PT	A-8	---	---	---	---	---	---
	Ag, Cg	10-80	Mucky clay, clay	MH, OH	A-7-5, A-8	100	100	100	95-100	67-137	43-63
CmA: Cancienne-----	Ap	0-23	Silt loam	CL	A-6, A-7-6	100	100	100	90-100	29-45	12-20
	Bw, Bg	23-67	Silty clay loam, silt loam, loam	CL	A-7-6, A-6	100	100	100	85-100	29-55	12-34
	BCg	67-80	Silty clay loam, silt loam, loam	CL, CL-ML, ML	A-6, A-4, A-7-6	100	100	100	80-100	29-45	13-24
CnA: Cancienne-----	A, Ap	0-7	Silty clay loam	CL	A-6, A-7-6	100	100	100	90-100	38-57	19-28
	Bg, Bw	7-43	Silty clay loam, silt loam, loam	CL	A-7-6, A-6	100	100	100	85-100	26-51	9-28
	BCg, C	43-80	Stratified very fine sandy loam to silty clay	CL, CL-ML, ML	A-6, A-4, A-7-6	100	100	100	75-100	25-45	13-24
CT: Cancienne-----	A, Ap	0-10	Silt loam, silty clay loam	CL	A-7-6, A-6	100	100	100	90-100	36-57	17-28
	Bg	10-21	Silty clay loam, silt loam, loam	CL	A-7-6, A-6	100	100	100	85-100	26-51	9-28
	Bw, C	21-80	Stratified very fine sandy loam to silty clay	CL, CL-ML, ML	A-7-6, A-4, A-6	100	100	100	75-100	25-51	9-30
Carville-----	A, Ap	0-14	Very fine sandy loam, silt loam	CL-ML, ML	A-4	100	100	95-100	85-100	0-35	NP-12
	BC, C	14-80	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	100	100	95-100	75-100	0-31	NP-12

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Horizon	Depth In	USDA texture	Classification		Percentage passing sieve number--				Liquid limit Pct	Plasticity index
				Unified	AASHTO	4	10	40	200		
CU:											
Allemands-----	Oa	0-32	Muck	PT	A-8	---	---	---	---	---	---
	Ag, Cg	32-80	Clay, mucky clay	MH, CH	A-7-6	100	100	95-100	80-100	63-112	43-67
Carlin-----	Oa, Oe	0-12	Muck, peat	PT	A-8	---	---	---	---	---	---
	W	12-18	Water			---	---	---	---	---	---
	Oa	18-36	Muck	PT	A-8	---	---	---	---	---	---
	Ag, Cg	36-80	Clay, mucky clay	MH, CH	A-7-6	100	100	95-100	80-100	63-112	43-67
CvA:											
Carville-----	A, Ap	0-13	Silt loam	CL-ML, ML	A-4	100	100	95-100	85-100	0-35	NP-12
	C, Cg	13-75	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	100	100	95-100	75-100	0-31	NP-12
GrA:											
Gramercy-----	Ap	0-11	Silty clay	CH, CL	A-6, A-7-6	100	100	100	95-100	49-66	28-36
	Bssg	11-42	Clay, silty clay	CH	A-7-6	95-100	95-100	95-100	90-100	52-76	29-42
	Bg	42-48	Clay, silty clay, silty clay loam	CH, CL	A-6, A-7-6	95-100	95-100	95-100	90-100	38-65	19-40
	Ab, Bgb	48-80	Silty clay, silty clay loam, silt loam	CL	A-6, A-7-6	95-100	95-100	90-100	60-90	29-59	12-36
IP:											
Industrial waste pits.											
Ke:											
Kenner-----	Oa, Oe	0-18	Muck	PT	A-8	---	---	---	---	---	---
	Cg	18-21	Clay, silty clay, mucky clay	MH, CH	A-7-6	100	100	100	95-100	50-104	32-60
	O'a	21-49	Muck	PT	A-8	---	---	---	---	---	---
	C'g	49-53	Clay, silty clay, mucky clay	MH, CH	A-7-6	100	100	100	95-100	50-104	32-60
	O''a	53-70	Muck	PT	A-8	---	---	---	---	---	---
	C''g	70-80	Clay, silty clay, mucky clay	MH, CH	A-7-6	100	100	100	95-100	50-104	32-60

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Horizon	Depth <u>In</u>	USDA texture	Classification		Percentage passing sieve number--				Liquid limit <u>Pct</u>	Plasticity index
				Unified	AASHTO	4	10	40	200		
LP: Levees. Borrow pits.											
Ma: Maurepas-----	Oa Cg	0-64 64-80	Muck Mucky clay, clay	PT MH, OH	A-8 A-7-5, A-8	--- 100	--- 100	--- 100	--- 95-100	--- 67-137	--- 43-63
SkA: Schriever-----	Ap Bg, Bssg Bssg, BCg	0-8 8-55 55-80	Clay Clay, silty clay Clay, silty clay loam, silt loam	CH, CL CH CH, CL	A-7-5, A-7-6 A-7-6, A-7-5 A-7-5, A-6, A-7-6	100 100 100	100 100 100	100 100 100	95-100 95-100 95-100	52-101 68-105 37-95	29-59 44-68 18-66
Sm: Schriever-----	Ap Bg, Bssg Bkssg Bssg', BCg	0-4 4-23 23-46 46-80	Clay Clay, silty clay Clay, silty clay Clay, silty clay loam, silt loam	CH, CL CH CH CH, CL	A-7-5, A-7-6 A-7-6, A-7-5 A-7-5, A-7-6 A-7-6, A-6, A-7-5	100 100 100 100	100 100 100 100	100 100 100 100	95-100 95-100 95-100 95-100	52-101 68-105 68-105 37-95	29-59 44-68 44-68 18-66
UL. Urban land											
W. Water											

Table 15.--Physical Soil Properties

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

Map symbol and soil name	Horizon	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
Ba:													
Barbary-----	Oa	0-10	---	0.15-0.50	2.00-6.00	0.20-0.50	0.0-2.9	30-70	---	---	5	8	0
	Ag, Cg	10-80	60-95	0.25-1.00	0.00-0.06	0.18-0.20	0.0-2.9	2.0-25	.32	.32			
CmA:													
Cancienne-----	Ap	0-23	19-29	1.27-1.53	0.60-2.00	0.21-0.23	0.0-2.9	0.5-4.0	.43	.43	5	5	56
	Bw, Bg	23-67	19-48	1.28-1.47	0.20-0.60	0.20-0.22	3.0-5.0	0.5-1.0	.32	.32			
	BCg	67-80	20-35	1.35-1.39	0.20-2.00	0.20-0.23	0.0-2.9	0.5-1.0	.37	.37			
CnA:													
Cancienne-----	A, Ap	0-7	27-39	1.25-1.45	0.20-0.60	0.15-0.19	3.0-5.9	0.5-4.0	.37	.37	5	7	38
	Bg, Bw	7-43	14-39	1.35-1.65	0.20-0.60	0.20-0.22	3.0-5.9	0.5-1.0	.32	.32			
	BCg, C	43-80	14-42	1.35-1.65	0.20-2.00	0.20-0.23	0.0-2.9	0.5-1.0	.37	.37			
CT:													
Cancienne-----	A, Ap	0-10	25-39	1.25-1.45	0.20-0.60	0.15-0.19	3.0-5.9	0.5-4.0	.37	.37	5	7	38
	Bg	10-21	14-39	1.35-1.65	0.20-0.60	0.20-0.22	3.0-5.9	0.5-1.0	.32	.32			
	Bw, C	21-80	14-42	1.35-1.65	0.20-2.00	0.20-0.23	0.0-2.9	0.5-1.0	.37	.37			
Carville-----	A, Ap	0-14	0-18	1.30-1.65	0.60-2.00	0.18-0.23	0.0-2.9	0.5-3.0	.43	.43	5	5	56
	BC, C	14-80	0-18	1.30-1.65	0.60-2.00	0.20-0.23	0.0-2.9	0.5-1.0	.37	.37			
CU:													
Allemands-----	Oa	0-32	---	0.05-0.25	2.00-20.00	0.20-0.50	0.0-2.9	30-70	---	---	2	8	0
	Ag, Cg	32-80	60-95	0.15-1.00	0.00-0.06	0.14-0.18	0.0-2.9	0.0-10	.32	.32			
Carlin-----	Oa, Oe	0-12	---	0.05-0.50	6.00-20.00	0.20-0.50	0.0-2.9	30-70	---	---	2	8	0
	W	12-18	---	---	---	---	---	---	---	---			
	Oa	18-36	---	0.05-0.50	6.00-20.00	0.20-0.50	0.0-2.9	10-40	---	---			
	Ag, Cg	36-80	60-95	0.15-1.00	0.00-0.06	0.14-0.18	0.0-2.9	0.0-10	.32	.32			
CvA:													
Carville-----	A, Ap	0-13	0-18	1.30-1.65	0.60-2.00	0.18-0.23	0.0-2.9	0.5-3.0	.43	.43	5	5	56
	C, Cg	13-75	0-18	1.30-1.65	0.60-2.00	0.20-0.23	0.0-2.9	0.5-1.0	.37	.37			
GrA:													
Gramercy-----	Ap	0-11	40-50	1.35-1.65	0.06-0.20	0.18-0.22	3.0-5.9	0.5-4.0	.37	.37	5	7	38
	Bssg	11-42	40-55	1.20-1.60	0.00-0.06	0.12-0.21	9.0-25.0	0.5-1.0	.32	.32			
	Bg	42-48	27-55	1.20-1.65	0.06-0.20	0.12-0.21	6.0-8.9	0.0-0.5	.32	.32			
	Ab, Bgb	48-80	18-50	1.20-1.65	0.06-0.20	0.12-0.21	3.0-5.9	0.0-0.5	.37	.37			

Table 15.--Physical Soil Properties--Continued

Map symbol and soil name	Horizon	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
IP. Industrial waste pits													
Ke:													
Kenner-----	Oa,Oe	0-18	---	0.05-0.25	6.00-20.00	0.20-0.25	0.0-2.9	20-60	---	---	3	8	0
	Cg	18-21	45-85	0.15-1.00	0.00-0.06	0.12-0.18	0.0-2.9	0.0-10	.32	.32			
	O'a	21-49	---	0.05-0.50	6.00-20.00	0.20-0.25	0.0-2.9	10-40	---	---			
	C'g	49-53	45-85	0.15-1.00	0.00-0.06	0.12-0.18	0.0-2.9	0.0-10	.32	.32			
	O''a	53-70	---	0.05-0.50	6.00-20.00	0.20-0.25	0.0-2.9	10-40	---	---			
	C''g	70-80	45-85	0.15-1.00	0.00-0.06	0.12-0.18	0.0-2.9	0.0-10	.32	.32			
LP:													
Levees-----		---	---	---	---	---	---	---	---	---	5	7	38
Borrow pits----		---	---	---	---	---	---	---	---	---	5	8	0
Ma:													
Maurepas-----	Oa	0-64	---	0.05-0.25	6.00-20.00	0.20-0.50	0.0-2.9	20-60	---	---	3	8	0
	Cg	64-80	60-95	0.25-1.00	0.00-0.06	0.18-0.20	0.0-2.9	2.0-25	.32	.32			
SkA:													
Schriever-----	Ap	0-8	40-78	1.20-1.50	0.00-0.06	0.12-0.18	9.0-25.0	0.5-4.0	.32	.32	5	4	86
	Bg, Bssg	8-55	60-90	1.20-1.50	0.00-0.06	0.07-0.14	9.0-25.0	0.0-0.5	.28	.28			
	Bssg, BCg	55-80	25-90	1.20-1.65	0.06-0.20	0.12-0.18	6.0-8.9	0.0-0.5	.28	.28			
Sm:													
Schriever-----	Ap	0-4	40-78	1.20-1.50	0.00-0.06	0.12-0.18	9.0-25.0	0.5-4.0	.32	.32	5	4	86
	Bg, Bssg	4-23	60-90	1.20-1.50	0.00-0.06	0.07-0.14	9.0-25.0	0.0-0.5	.28	.28			
	Bkssg	23-46	60-90	1.20-1.50	0.00-0.06	0.07-0.14	9.0-25.0	0.0-0.5	.28	.28			
	Bssg', BCg	46-80	25-90	1.20-1.65	0.06-0.20	0.12-0.18	6.0-8.9	0.0-0.5	.28	.28			
UL:													
Urban land-----		---	---	---	---	---	---	---	---	---	-	8	0
W. Water													

Table 16.--Chemical Soil Properties

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

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
		<u>meq/100 g</u>	<u>pH</u>	<u>Pct</u>	<u>mmhos/cm</u>	
Ba:						
Barbary-----	0-10	75-154	5.1-8.4	0	0.0-2.0	0
	10-80	44-70	6.1-8.4	0	0.0-2.0	0
CmA:						
Cancienne-----	0-23	---	5.1-7.8	0	0	0
	23-67	---	7.4-8.4	0-3	0	0
	67-80	---	7.9-8.4	0-5	0	0
CnA:						
Cancienne-----	0-7	10-25	5.1-7.8	0	0	0
	7-43	10-30	7.4-8.4	0-2	0	0
	43-80	10-40	7.9-8.4	2-4	0	0
CT:						
Cancienne-----	0-10	10-25	5.1-7.8	0	0	0
	10-21	10-30	7.4-8.4	0-2	0	0
	21-80	10-40	7.9-8.4	2-4	0	0
Carville-----	0-14	8.0-20	6.6-9.0	0-5	0	0
	14-80	5.0-22	6.6-9.0	0-5	0	0
CU:						
Allemands-----	0-32	49-149	5.1-8.4	0	0.0-4.0	0-15
	32-80	37-68	6.1-8.4	0	0.0-4.0	5-15
Carlin-----	0-12	49-149	5.6-8.4	0	0.0-4.0	0
	12-18	---	---	---	---	---
	18-36	0.0-74	5.6-8.4	0	0.0-4.0	0
	36-80	50-100	5.6-8.4	0	0.0-4.0	5-15
CvA:						
Carville-----	0-13	8.0-20	6.6-9.0	0-5	0	0
	13-75	5.0-22	6.6-9.0	0-5	0	0
GrA:						
Gramercy-----	0-11	10-25	5.6-8.4	0	0	0
	11-42	15-40	5.6-8.4	0	0	0
	42-48	15-40	6.1-8.4	0-1	0	0
	48-80	10-40	6.1-8.4	0-1	0	0
IP. Industrial waste pits						
Ke:						
Kenner-----	0-18	24-124	5.6-8.4	---	0.0-4.0	---
	18-21	4.5-47	5.6-8.4	0	0.0-4.0	0
	21-49	0.0-74	5.6-8.4	---	0.0-4.0	---
	49-53	4.5-47	5.6-8.4	0	0.0-4.0	0
	53-70	0.0-74	5.6-8.4	---	0.0-4.0	---
	70-80	4.5-47	5.6-8.4	0	0.0-4.0	0
LP: Levees. Borrow pits.						

Table 16.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
Ma:						
Maurepas-----	0-64	24-124	5.6-8.4	0	0.0-4.0	0
	64-80	24-66	6.6-8.4	0	0.0-2.0	0
SkA:						
Schriever-----	0-8	20-40	5.1-8.4	0	0	0
	8-55	20-40	6.6-8.4	0-1	0	0
	55-80	10-40	6.6-8.4	0-4	0	0
Sm:						
Schriever-----	0-4	20-40	5.1-8.4	0	0	0
	4-23	20-40	5.1-8.4	0-1	0	0
	23-46	20-40	6.6-8.4	0-4	0	0
	46-80	10-40	6.6-8.4	0-1	0	0
UL. Urban land						
W. Water						

Table 17.--Soil Features

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

Map symbpl and soil name	Subsidence		Risk of corrosion	
	Initial	Total	Uncoated steel	Concrete
	<u>In</u>	<u>In</u>		
Ba: Barbary-----	3-12	6-15	High	Moderate
CmA, CnA: Cancienne-----	---	---	High	Low
CT: Cancienne-----	---	---	High	Low
Carville-----	---	---	High	Low
CU: Allemands-----	8-25	16-51	High	Moderate
Carlin-----	15-30	51	Moderate	Moderate
CvA: Carville-----	---	---	High	Low
GrA: Gramercy-----	---	---	High	Moderate
IP. Industrial waste pits				
Ke: Kenner-----	15-30	51	High	Moderate
LP: Levees-----	---	---	Moderate	Moderate
Borrow pits-----	---	---	High	Low
Ma: Maurepas-----	15-30	51	High	High
SkA, Sm: Schriever-----	---	---	High	Moderate
UL. Urban land				
W. Water				

Table 18.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Ba: Barbary-----	D	Negligible	Jan-Dec	0.0	>6.0	0.0-1.0	Very long	Frequent	Very long	Frequent
CmA, CnA: Cancienne-----	C	Low	Jan-Apr	1.5-4.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			Dec	1.5-4.0	>6.0	---	---	None	---	None
CT: Cancienne-----	C	Low	Jan-Apr	1.5-4.0	>6.0	---	---	None	Long	Frequent
			May-Jun	---	---	---	---	None	Long	Frequent
			Jul-Nov	---	---	---	---	None	---	---
			Dec	1.5-4.0	>6.0	---	---	None	Long	Frequent
Carville-----	C	Low	Jan-May	1.0-2.5	>6.0	---	---	None	Long	Frequent
			Jun	---	---	---	---	None	Long	Frequent
			Jul-Nov	---	---	---	---	None	---	---
			Dec	1.0-2.5	>6.0	---	---	None	Long	Frequent
CU: Allemands-----	D	Negligible	Jan-Dec	0.0	>6.0	0.0-1.0	Very long	Frequent	Very long	Very frequent
Carlin-----	D	Negligible	Jan-Dec	0.0	>6.0	0.0-1.0	Very long	Frequent	Very long	Very frequent
CvA: Carville-----	C	Low	Jan-Apr	1.0-2.5	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			Dec	1.0-2.5	>6.0	---	---	None	---	None
GrA: Gramercy-----	D	Very high	Jan-Apr	0.0-2.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			Dec	0.0-2.0	>6.0	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Surface water depth	Ponding		Flooding	
				Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
IP. Industrial waste pits										
Ke: Kenner-----	D	Negligible	Jan-Dec	0.0	>6.0	0.0-1.0	Very long	Frequent	Very long	Very frequent
LP: Levees-----	A/D	High	Jan-Dec	---	---	---	---	None	---	None
Borrow pits-----	D	Negligible	Jan-Jun	0.0-1.0	>6.0	---	---	None	---	Rare
			Jul-Oct	---	---	---	---	None	---	---
			Nov	0.0-1.0	>6.0	---	---	None	---	---
			Dec	0.0-1.0	>6.0	---	---	None	---	Rare
Ma: Maurepas-----	D	Negligible	Jan-Dec	0.0	>6.0	0.0-1.0	Very long	Frequent	Very long	Frequent
SkA: Schriever-----	D	Very high	Jan-May	0.0-2.0	>6.0	---	---	None	---	Rare
			Jun-Jul	---	---	---	---	None	---	Rare
			Aug-Nov	---	---	---	---	None	---	---
			Dec	0.0-2.0	>6.0	---	---	None	---	Rare
Sm: Schriever-----	D	Very high	Jan-May	0.0-2.0	>6.0	---	---	None	Long	Frequent
			Jun-Jul	---	---	---	---	None	Long	Frequent
			Aug-Nov	---	---	---	---	None	---	---
			Dec	0.0-2.0	>6.0	---	---	None	Long	Frequent
UL: Urban land-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
W. Water										

Table 19.--Fertility Test Data for Selected Soils

(Analyses by the Soil Fertility Laboratory, Louisiana Agricultural Experiment Station. Dashes indicate data is not available.)

Soil name and sample number	Hori- zon	Depth	Organic matter content	pH 1:1 H2O	Extract- able- phos- phorus	Exchangeable cations					Total acid- ity	Cation- exchange capacity (sum)	Base satura- tion (sum)	Saturation		Ca/Mg
						Ca	Mg	K	Na	Al				Sum of	Effective	
														cation- exchange capacity	cation- exchange capacity	
						--Milliequivalents/100 grams of soil--						Pct	Pct	Pct		
Cancienne ¹ (S02LA-095-001)	Ap1	0-6	0.02	5.7	43	10.5	2.8	0.8	---	0.1	4.9	19.0	74.2	0.0	0.7	3.75
	Ap2	6-10	---	5.2	46	10.7	2.8	0.5	---	0.3	5.4	19.4	72.2	0.0	2.1	3.82
	Ap3	10-16	---	6.2	18	13.1	3.3	0.3	---	---	3.2	19.9	83.9	0.0	0.0	3.97
	Ap4	16-23	---	7.6	3	19.3	5.6	0.5	---	---	1.6	27.0	94.1	0.0	0.0	3.45
	Bg1	23-34	---	8.1	7	17.7	5.3	0.3	---	---	1.8	25.1	92.8	0.0	0.0	3.34
	Bg2	34-42	---	8.1	12	15.7	5.2	0.4	---	---	1.4	22.7	93.8	0.0	0.0	3.02
	Bg3	42-55	---	8.1	---	36.4	9.9	0.7	---	---	2.2	49.2	95.5	0.0	0.0	3.68
	BCg1	55-67	---	8.2	---	26.7	8.0	0.6	---	---	1.9	37.2	94.9	0.0	0.0	3.34
	BCg2	67-74	---	8.3	---	31.6	6.5	0.5	---	---	0.6	39.2	98.5	0.0	0.0	4.86
BCg3	74-80	---	8.3	---	39.3	6.0	0.6	---	---	1.0	46.9	97.9	0.0	0.0	6.55	
Gramercy ¹ (S00LA-95-001)	Ap1	0-6	---	6.1	176	31.5	8.5	2.6	0.5	---	7.8	50.9	84.7	1.0	0.0	3.71
	Ap2	6-11	---	7.4	102	25.9	8.6	2.6	0.5	---	1.9	39.5	95.2	1.3	0.0	3.01
	Bssg1	11-22	---	7.8	34	27.9	9.7	2.3	0.5	---	3.6	44.0	91.8	1.1	0.0	2.88
	Bssg2	22-36	---	7.6	11	29.2	10.0	1.8	0.6	---	2.3	43.9	94.8	1.4	0.0	2.92
	Bssg3	36-42	---	7.5	20	33.1	11.3	1.6	0.6	---	3.2	49.8	93.6	1.2	0.0	2.93
	Bg	42-48	---	7.3	---	26.8	9.5	1.3	0.8	---	2.7	41.1	93.4	1.9	0.0	2.82
	Ab	48-55	---	7.4	---	19.7	6.9	1.0	1.5	---	2.7	31.8	91.5	4.7	0.0	2.86
	Bgb1	55-63	---	7.3	---	18.8	7.1	1.0	0.7	---	1.5	29.1	94.8	2.4	0.0	2.65
	Bgb2	63-80	---	7.3	183	22.9	8.9	1.2	0.3	0.0	2.3	35.6	93.5	0.8	0.0	2.57
Schriever ¹ (S02LA-095-002)	Ap	0-4	---	6.2	13	47.8	13.0	1.1	0.0	---	14.1	76.0	81.4	0.0	0.0	3.68
	Bg	4-15	---	6.7	18	39.5	12.1	1.2	0.2	---	6.7	59.7	88.8	0.3	0.0	3.26
	Bssg	15-23	---	7.3	11	38.5	12.5	1.1	0.4	---	5.1	57.6	91.1	0.7	0.0	3.08
	Bkssg1	23-30	---	7.4	7	35.9	12.0	1.0	0.5	---	4.8	54.2	91.1	0.9	0.0	2.99
	Bkssg2	30-38	---	7.6	5	44.4	13.0	1.0	0.5	---	2.1	61.0	96.6	0.8	0.0	3.42
	Bkssg3	38-46	---	7.6	7	49.3	13.2	1.0	0.5	---	3.3	67.3	95.1	0.7	0.0	3.73
	Bssg'1	46-52	---	7.6	11	47.5	14.1	1.1	1.6	---	3.8	67.1	94.3	0.9	0.0	3.37
	Bssg'2	52-60	---	7.8	24	39.5	13.2	0.9	0.7	---	2.4	56.7	95.8	1.2	0.0	2.99
	Bssg'3	60-70	---	7.7	16	37.6	12.8	0.9	0.7	---	3.9	55.9	93.0	1.3	0.0	2.94
Bssg'4	70-80	---	7.5	22	37.9	13.1	0.9	0.8		3.8	56.5	93.3	1.4	0.0	2.89	

See footnotes at end of table.

Table 19.--Fertility Test Data for Selected Soils--Continued

Soil name and sample number	Hori- zon	Depth	Organic matter content	pH 1:1 H2O	Extract- able- phos- phorus	Exchangeable cations					Total acid- ity	Cation- exchange capacity (sum)	Base satura- tion (sum)	Saturation		Ca/Mg
						Ca	Mg	K	Na	Al				Sum of cation- exchange capacity	Effective cation- exchange capacity	
						--Milliequivalents/100 grams of soil--					Pct	Pct	Pct			
Carville¹																
(S02LA-095-003)	Ap1	0-6	---	8.2	0	27.2	4.7	0.2	0.4	0.0	0.0	32.5	100.0	1.2	0.0	5.79
	Ap2	6-13	---	8.5	1	40.8	3.9	0.5	0.3	0.0	0.1	45.6	99.8	0.7	0.0	10.46
	C1	13-19	---	8.3	3	25.7	5.2	0.4	0.5	0.0	1.0	32.8	97.0	1.5	0.0	4.94
	C2	19-28	---	8.3	5	21.6	5.5	0.4	0.4	0.0	0.8	28.7	97.2	1.4	0.0	3.93
	C3	28-33	---	8.2	6	21.0	5.9	0.5	0.3	0.0	1.3	29.0	95.5	1.0	0.0	3.56
	C4	33-39	---	8.2	8	16.6	5.1	0.4	0.3	0.0	1.1	23.5	95.3	1.3	0.0	3.25
	Cg1	39-45	---	8.2	---	20.0	4.8	0.5	0.3	0.0	2.2	27.8	92.1	1.1	0.0	4.17
	Cg2	45-54	---	8.1	---	18.1	4.2	0.4	0.2	0.0	1.6	24.5	93.5	0.8	0.0	4.31
	Cg3	54-75	---	8.0	---	12.1	4.7	0.5	0.2	0.0	1.6	19.1	91.6	1.0	0.0	2.57
Schriever²																
(S02LA-095-004)	Ap	0-8	---	7.3	---	40.0	12.8	1.0	1.3	---	4.4	59.5	92.6	2.2	0.0	3.13
	Bssg1	8-13	---	7.5	---	37.8	12.5	1.1	1.7	---	4.5	57.6	92.2	3.0	0.0	3.02
	Bssg2	13-24	---	7.4	---	37.9	12.7	1.1	1.7	---	5.5	58.9	90.7	2.9	0.0	2.98
	Bssg3	24-39	---	7.3	---	37.8	12.8	1.2	1.6	---	5.0	58.4	91.4	2.7	0.0	2.95
	Bssg4	39-47	---	7.5	---	32.4	11.1	1.0	1.5	---	4.0	50.0	92.0	3.0	0.0	2.92
	Bssg5	47-61	---	7.3	---	31.0	10.8	0.9	1.4	---	4.2	48.3	91.3	2.9	0.0	2.87
	Bssg6	61-72	---	7.2	---	29.4	10.5	0.8	1.5	---	4.1	46.3	91.1	3.2	0.0	2.80
	Bssg7	72-80	---	7.3	---	29.4	10.8	0.9	1.7	---	3.9	46.7	91.6	3.6	0.0	2.72

¹ This is the pedon for the series. For a description of the soil, see the section "Detailed Soil Map Units" or "Soil Series and Their Morphology."

² This is the typical pedon for the series in St. John the Baptist Parish. For a description of the soil, see the section "Detailed Soil Map Units."

Table 20.--Chemical Test Data for Selected Soils

(Dashes indicate that analyses were not made.)

Soil name and sample number	Horizon	Depth	Extractable cations				Ex-tract-able acidity	Cation-exchange capacity NH4OAc	Base saturation	Organic carbon	pH		Ex-tract-able nitrogen
			Ca	Mg	K	Na					1:2 CaCl2	1:1 H2O	
			----Meq/100g----								Ppm	Pct	
Cancienne ¹ (S02LA-095-001)	Ap1	0-6	10.5	2.8	0.8	0.0	4.9	15.2	93	---	5.1	5.7	---
	Ap2	6-10	10.7	2.8	0.5	0.0	5.4	14.5	97	---	4.9	5.2	---
	Ap3	10-16	13.1	3.3	0.3	---	3.2	16.0	104	---	5.9	6.2	---
	Ap4	16-23	19.3	5.6	0.5	0.0	1.6	21.8	117	---	7.1	7.6	---
	Bg1	23-34	17.7	5.3	0.3	0.0	1.8	17.2	135	---	7.4	8.1	---
	Bg2	34-42	15.7	5.2	0.4	0.0	1.4	15.2	140	---	7.4	8.1	---
	Bg3	42-55	36.4	9.9	0.7	0.0	2.2	30.7	153	---	7.5	8.1	---
	BCg1	55-67	26.7	8.0	0.6	0.0	1.9	23.0	153	---	7.5	8.2	---
	BCg2	67-74	31.6	6.5	0.5	0.0	0.6	17.7	218	---	7.6	8.3	---
	BCg3	74-80	39.3	6.0	0.6	0.0	1.0	16.7	275	---	7.6	8.3	---
Gramercy ¹ (S00LA-95-001)	Ap1	0-6	31.5	8.5	2.6	0.5	7.8	41.4	104	0.31	6.1	6.1	---
	Ap2	6-11	25.9	8.6	2.6	0.5	1.9	35.8	105	0.27	7.0	7.4	---
	Bssg1	11-22	27.9	9.7	2.3	0.5	3.6	38.9	104	0.17	7.5	7.8	---
	Bssg2	22-36	29.2	10.0	1.8	0.6	2.3	39.7	105	0.11	7.4	7.6	---
	Bssg3	36-42	33.1	11.3	1.6	0.6	3.2	45.3	103	0.22	7.3	7.5	---
	Bg	42-48	26.8	9.5	1.3	0.6	2.7	36.8	104	0.22	7.1	7.3	---
	Ab	48-55	19.7	6.9	1.0	0.8	2.7	26.1	109	0.53	6.9	7.4	---
	Bgb1	55-63	18.8	7.1	1.0	1.5	1.5	27.3	104	0.33	6.9	7.3	---
	Bgb2	63-80	22.9	8.9	1.2	0.7	2.3	34.0	99	0.39	6.9	7.3	---
Schriever ¹ (S02LA-095-002)	Ap	0-4	47.8	13.0	1.1	0.0	14.1	62.4	99	---	6.0	6.2	0.445
	Bg	4-15	39.5	12.1	1.2	0.2	6.7	51.8	102	---	6.6	6.7	0.235
	Bssg	15-23	38.5	12.5	1.1	0.4	5.1	49.1	107	---	7.2	7.3	0.132
	Bkssg1	23-30	35.9	12.0	1.0	0.5	4.8	46.5	106	---	7.3	7.4	0.105
	Bkssg2	30-38	44.4	13.0	1.0	0.5	2.1	43.9	134	---	7.4	7.6	0.097
	Bkssg3	38-46	49.3	13.2	1.0	0.5	3.3	42.3	151	---	7.4	7.6	0.089
	Bssg'1	46-52	47.5	14.1	1.1	0.6	3.8	48.4	131	---	7.5	7.6	0.106
	Bssg'2	52-60	39.5	13.2	0.9	0.7	2.4	47.0	116	---	7.7	7.8	0.111
	Bssg'3	60-70	37.6	12.8	0.9	0.7	3.9	45.5	114	---	7.5	7.7	0.134
	Bssg'4	70-80	37.9	13.1	0.9	0.8	3.8	47.8	110	---	7.3	7.5	0.087
Carville ¹ (S02LA-095-003)	Ap1	0-6	27.2	4.7	0.2	0.4	0.0	10.4	313	---	7.9	8.2	0.191
	Ap2	6-13	40.8	3.9	0.5	0.3	0.1	6.9	659	---	8.0	8.5	0.060
	C1	13-19	25.7	5.2	0.4	0.5	1.0	12.1	263	---	7.7	8.3	0.063
	C2	19-28	21.6	5.5	0.4	0.4	0.8	12.2	229	---	7.6	8.3	0.025
	C3	28-33	21.0	5.9	0.5	0.3	1.3	14.8	187	---	7.6	8.2	0.059
	C4	33-39	16.6	5.1	0.4	0.3	1.1	11.4	196	---	7.5	8.2	0.033
	Cg1	39-45	20.0	4.8	0.5	0.3	2.2	12.7	202	---	7.6	8.2	0.032
	Cg2	45-54	18.1	4.2	0.4	0.2	1.6	11.6	197	---	7.5	8.1	0.036
	Cg3	54-75	12.1	4.7	0.5	0.2	1.6	10.0	175	---	7.4	8.0	0.066

See footnotes at end of table.

Table 20.--Chemical Test Data for Selected Soils--Continued

Soil name and sample number	Horizon	Depth	Extractable cations				Ex-tract-able acidity	Cation-exchange capacity NH4OAc	Base saturation	Organic carbon	pH		Ex-tract-able nitrogen
			Ca	Mg	K	Na					1:2	1:1	
			----Meq/100g-----								Ppm	-----Pct-----	
Schriever ² (S02LA-095-004)	Ap	0-8	40.0	12.8	1.0	1.3	4.4	50.6	109	---	5.3	7.1	0.249
	Bssg1	8-13	37.8	12.5	1.1	1.7	4.5	44.0	121	---	4.7	7.4	0.169
	Bssg2	13-24	37.9	12.7	1.1	1.7	5.5	49.8	107	---	4.6	7.3	0.140
	Bssg3	24-39	37.8	12.8	1.2	1.6	5.0	50.6	106	---	4.7	7.2	0.146
	Bssg4	39-47	32.4	11.1	1.0	1.5	4.0	42.6	108	---	4.8	7.3	0.118
	Bssg5	47-61	31.0	10.8	0.9	1.4	4.2	41.9	105	---	4.8	7.3	0.069
	Bssg6	61-72	29.4	10.5	0.8	1.5	4.1	39.7	106	---	5.1	7.0	0.064
	Bssg7	72-80	29.4	10.8	0.9	1.7	3.9	40.3	106	---	5.3	7.1	0.078

1 This is the pedon for the series. For a description of the soil, see the section "Detailed Soil Map Units" or "Soil Series and Their Morphology."

2 This is the typical pedon for the series in St. John the Baptist Parish. For a description of the soil, see the section "Detailed Soil Map Units."

Table 21.--Physical Test Data for Selected Soils

(Dashes indicate that analyses were not made.)

Soil name and sample number	Horizon	Depth	Particle-size distribution								Water content		Bulk density		COLE
			Sand					Total (2.0- 0.05 mm)	Silt (0.05- 0.002 mm)	Clay (<0.002 mm)	1/3 bar	15 bar	1/3 bar	Oven dry	
			Very coarse (2-1 mm)	Coarse (1-0.5 mm)	Medium (0.5- 0.25 mm)	Fine (0.25- 0.10 mm)	Very fine (0.10- 0.05 mm)								
		In	-----Pct-----								Pct	(wt)	g/cc	g/cc	
Cancienne ¹ (S02LA-095-001)	Ap1	0-6	0.1	0.3	0.3	0.7	7.1	8.5	72.5	19.0	26.2	9.3	1.27	1.39	0.031
	Ap2	6-10	0.0	0.3	0.3	0.6	7.1	8.3	72.6	19.1	25.7	9.3	1.39	1.49	0.023
	Ap3	10-16	0.1	0.2	0.2	0.5	6.1	7.1	72.1	20.8	24.4	9.8	1.53	1.66	0.028
	Ap4	16-23	0.0	0.4	0.4	0.6	6.1	7.5	63.6	28.9	33.4	14.2	1.35	1.60	0.058
	Bg1	23-34	0.1	0.4	0.4	1.0	13.0	14.9	64.1	21.0	29.9	11.3	1.41	1.57	0.036
	Bg2	34-42	0.0	0.3	0.3	1.7	27.4	29.7	51.5	18.8	27.5	10.0	1.47	1.50	0.007
	Bg3	42-55	0.0	0.2	0.2	0.4	0.8	1.6	50.5	47.9	37.8	22.2	1.28	1.61	0.079
	BCg1	55-67	0.0	0.2	0.2	0.4	1.6	2.4	67.1	30.5	34.8	16.6	1.34	1.53	0.045
	BCg2	67-74	0.0	0.2	0.2	0.4	4.2	5.0	73.4	21.6	32.5	12.5	1.39	1.51	0.028
	BCg3	74-80	0.0	0.2	0.2	0.3	2.8	3.5	77.0	19.5	33.8	11.1	1.35	1.43	0.019
Gramercy ¹ (S00LA-95-001)	Ap1	0-6	0.1	0.2	0.3	0.8	2.2	3.6	48.9	47.5	---	31.7	---	---	---
	Ap2	6-11	0.3	0.2	0.2	0.6	2.1	3.4	45.6	51.0	---	27.3	---	---	---
	Bssg1	11-22	0.0	0.1	0.1	0.3	1.0	1.5	40.7	57.8	---	23.7	---	---	---
	Bssg2	22-36	0.0	0.0	0.1	0.3	0.5	0.9	41.7	57.4	---	27.1	---	---	---
	Bssg3	36-42	0.0	0.0	0.1	0.3	0.3	0.7	33.3	66.0	---	27.6	---	---	---
	Bg	42-48	0.0	0.0	0.2	0.3	1.2	1.7	43.1	55.2	---	23.0	---	---	---
	Ab	48-55	0.0	0.1	0.2	0.3	1.3	1.9	61.0	37.1	---	17.9	---	---	---
	Bgb1	55-63	0.0	0.1	0.2	0.3	1.6	2.2	62.0	35.8	---	18.5	---	---	---
	Bgb2	63-80	0.0	0.0	0.1	0.3	0.8	1.2	54.3	44.5	---	21.9	---	---	---
Schriever ¹ (S02LA-095-002)	Ap	0-4	0.0	0.0	0.1	0.1	0.5	0.7	20.8	78.5	64.3	38.9	0.72	1.42	0.254
	Bg	4-15	0.0	0.0	0.0	0.1	0.1	0.2	25.8	74.0	52.2	32.9	1.02	1.79	0.206
	Bssg	15-23	0.0	0.1	0.1	0.2	0.3	0.7	24.2	75.1	51.7	30.6	1.05	1.80	0.197
	Bkssg1	23-30	0.0	0.0	0.1	0.3	0.4	0.8	25.5	73.7	50.8	29.7	1.06	1.75	0.182
	Bkssg2	30-38	0.1	0.1	0.1	0.3	0.3	0.9	30.2	68.9	48.0	29.2	1.10	1.77	0.172
	Bkssg3	38-46	0.1	0.1	0.1	0.2	0.3	0.8	31.8	67.4	46.4	28.2	1.13	1.78	0.164
	Bssg ¹	46-52	0.1	0.1	0.0	0.0	0.2	0.4	20.2	79.4	50.6	31.5	1.06	1.80	0.193
	Bssg ²	52-60	0.0	0.3	0.1	0.1	0.1	0.6	25.5	73.9	60.9	31.1	0.95	1.81	0.240
	Bssg ³	60-70	0.0	0.4	0.0	0.0	0.1	0.5	28.1	71.4	51.9	30.4	1.04	1.77	0.194
	Bssg ⁴	70-80	0.0	0.3	0.0	0.0	0.1	0.4	24.4	75.2	59.9	30.9	0.97	1.78	0.224

See footnotes at end of table.

Table 21.--Physical Test Data for Selected Soils--Continued

Soil name and sample number	Horizon zon	Depth	Particle-size distribution								Water content		Bulk density		COLE
			Sand					Total (2.0-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	1/3 bar	15 bar	1/3 bar	Oven dry	
			Very coarse (2-1 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.10 mm)	Very fine (0.10-0.05 mm)								
		In	-----Pct-----								Pct (wt)	g/cc	g/cc		
Carville ¹ (S02LA-095-003)	Ap1	0-6	0.0	0.1	0.3	2.0	26.6	29.0	61.7	9.3	27.6	8.0	1.36	1.41	0.012
	Ap2	6-13	0.2	0.2	0.3	3.4	22.6	26.7	63.4	9.9	26.9	5.5	1.40	1.43	0.007
	C1	13-19	0.0	0.1	0.2	0.6	17.2	18.1	65.9	16.0	24.8	8.7	1.50	1.54	0.009
	C2	19-28	0.1	0.0	0.1	0.4	11.6	12.2	72.5	15.3	29.1	8.5	1.34	1.39	0.012
	C3	28-33	0.0	0.1	0.1	0.1	3.7	4.0	77.2	18.8	31.4	10.5	1.38	1.43	0.012
	C4	33-39	0.0	0.0	0.2	0.7	25.2	26.1	59.4	14.5	27.7	7.7	1.30	1.34	0.010
	Cg1	39-45	0.0	0.1	0.2	0.6	20.3	21.2	63.9	14.9	28.4	8.8	1.28	1.33	0.013
	Cg2	45-54	0.0	0.0	0.1	0.5	15.1	15.7	70.4	13.9	30.6	8.0	1.37	1.41	0.010
	Cg3	54-75	0.0	0.0	0.2	0.7	33.0	33.9	53.4	12.7	23.4	7.2	1.34	1.37	0.007
Schriever ² (S02LA-095-004)	Ap	0-8	0.0	0.0	0.0	0.0	0.1	0.1	18.0	81.9	51.0	32.7	1.07	1.88	0.207
	Bssg1	8-13	0.0	0.0	0.1	0.1	0.1	0.3	18.8	80.9	50.9	31.9	1.09	1.85	0.193
	Bssg2	13-24	0.0	0.0	0.0	0.1	0.2	0.3	13.5	86.2	56.2	32.3	1.02	1.81	0.211
	Bssg3	24-39	0.0	0.0	0.0	0.1	0.2	0.3	12.8	86.9	58.6	32.9	1.00	1.79	0.214
	Bssg4	39-47	0.0	0.0	0.0	1.2	0.3	0.5	32.3	67.2	59.8	28.4	0.99	1.79	0.218
	Bssg5	47-61	0.0	0.0	0.1	1.2	0.3	0.6	35.8	63.6	46.4	27.4	1.15	1.82	0.165
	Bssg6	61-72	0.0	0.0	0.1	0.2	0.3	0.6	37.9	61.5	49.3	27.2	1.08	1.73	0.170
	Bssg7	72-80	0.0	0.0	0.0	0.1	0.2	0.3	37.8	61.9	46.4	27.1	1.11	1.70	0.153

¹ This is the pedon for the series. For a description of the soil, see the section "Detailed Soil Map Units" or "Soil Series and Their Morphology."

² This is the typical pedon for the series in St. John the Baptist Parish. For a description of the soil, see the section "Detailed Soil Map Units."

Table 22.--Taxonomic Classification of the Soils

Soil name	Family or higher taxonomic class
Allemands-----	Clayey, smectitic, euic, hyperthermic Terric Haplosaprists
Barbary-----	Very-fine, smectitic, nonacid, hyperthermic Typic Hydraquents
Cancienne-----	Fine-silty, mixed, superactive, nonacid, hyperthermic Fluvaquentic Epiaquepts
Carlin-----	Clayey, smectitic, euic, hyperthermic Terric Haplosaprists
Carville-----	Coarse-silty, mixed, superactive, calcareous, hyperthermic Fluventic Endoaquepts
Gramercy-----	Fine, smectitic, hyperthermic Chromic Epiaquerts
Kenner-----	Euic, hyperthermic Fluvaquentic Haplosaprists
Maurepas-----	Euic, hyperthermic Typic Haplosaprists
Schriever-----	Very-fine, smectitic, hyperthermic Chromic Epiaquerts

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