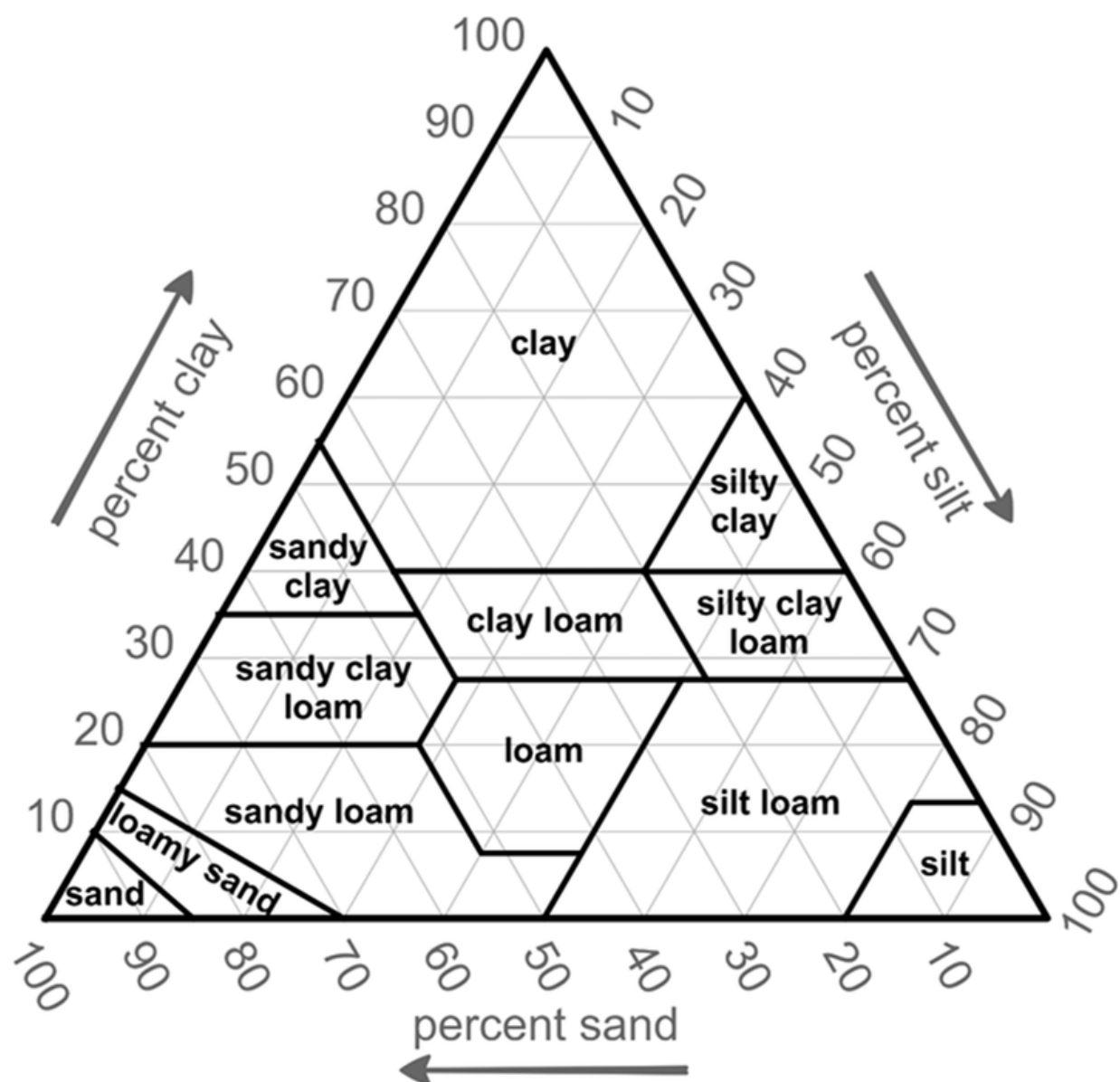






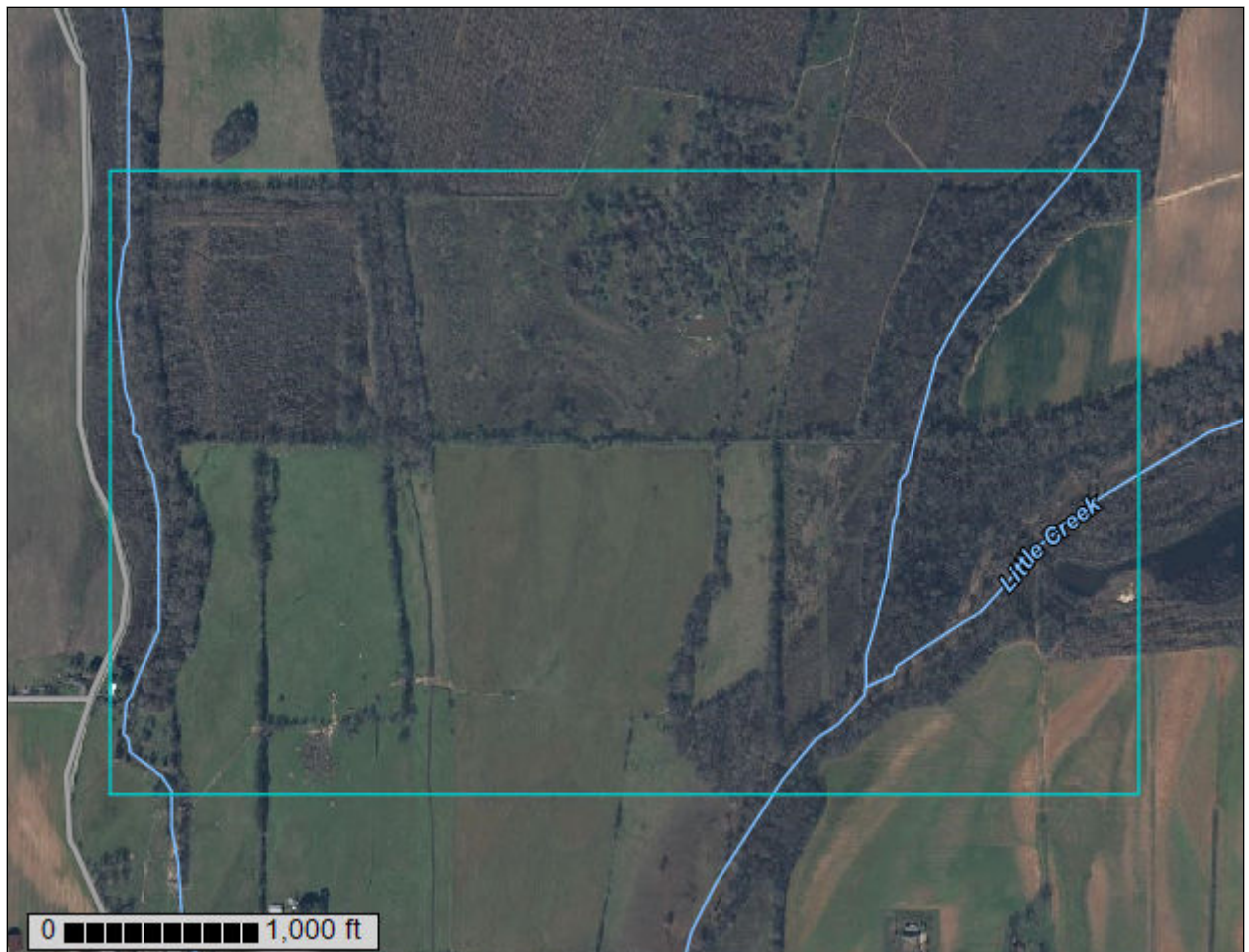
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Richland Parish, Louisiana



Preface

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

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

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

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

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

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

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

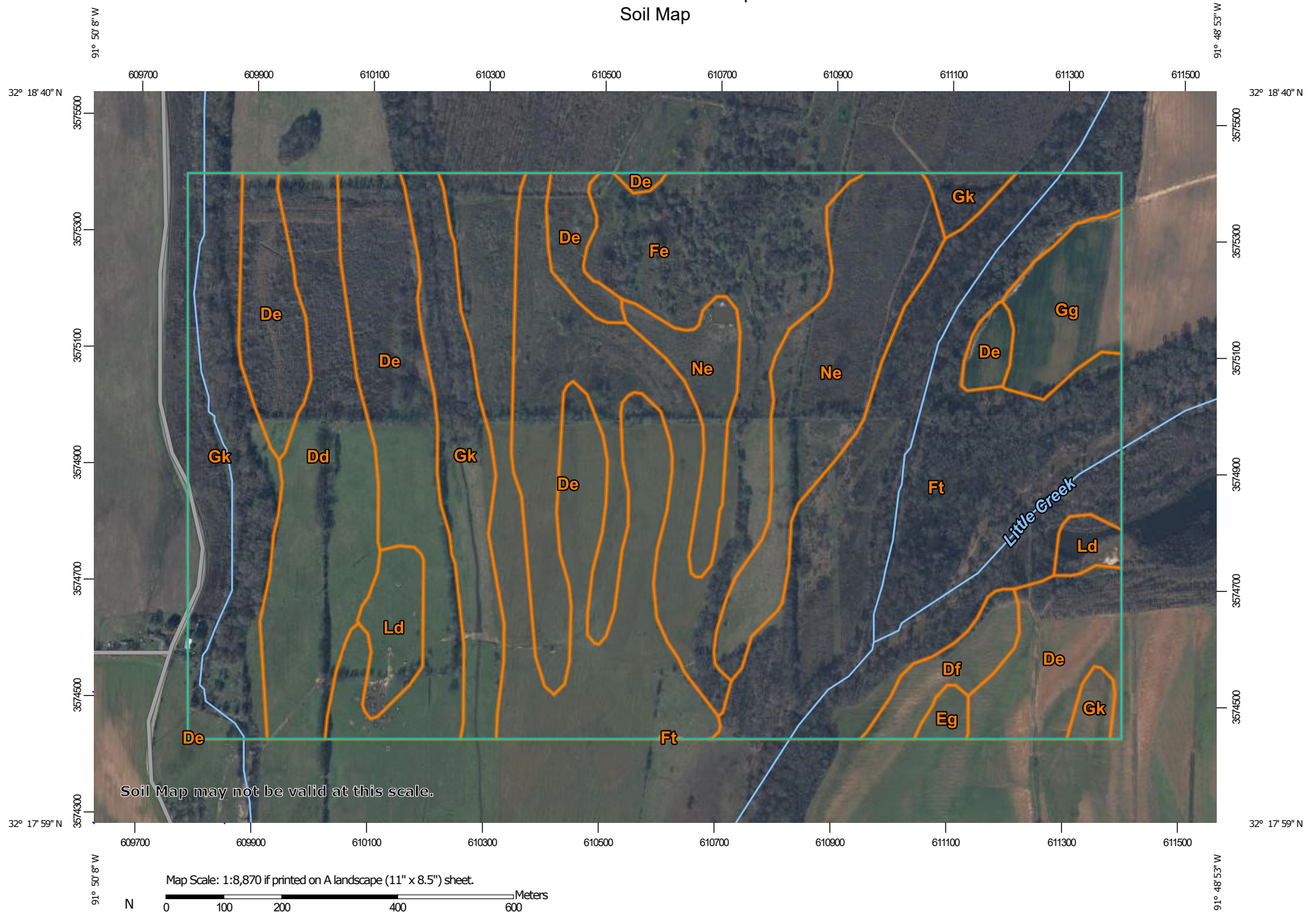
Custom Soil Resource Report

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

Soil Map

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

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

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

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

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

Soil Survey Area: Richland Parish, Louisiana
Survey Area Data: Version 18, Sep 3, 2024

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

Date(s) aerial images were photographed: Jan 20, 2020—May 31, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Dd	Dexter silt loam, 0 to 1 percent slopes	30.1	7.7%
De	Dexter silt loam, 1 to 3 percent slopes	101.3	26.0%
Df	Dexter silt loam, 3 to 5 percent slopes	6.2	1.6%
Eg	Egypt silt loam, 1 to 3 percent slopes	1.5	0.4%
Fe	Foley silt loam	66.3	17.1%
Ft	Forestdale silty clay loam, 0 to 1 percent slope, occasionally flooded, upland phase	77.8	20.0%
Gg	Gigger-Gilbert silt loams, gently undulating	11.3	2.9%
Gk	Gilbert silt loam	51.0	13.1%
Ld	Liddieville fine sandy loam, 2 to 5 percent slopes	8.4	2.2%
Ne	Necessity silt loam, 1 to 3 percent slopes	35.0	9.0%
Totals for Area of Interest		388.9	100.0%

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different

management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

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

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

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

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

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

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

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

Richland Parish, Louisiana

Dd—Dexter silt loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 1vkc3
Elevation: 50 to 130 feet
Mean annual precipitation: 47 to 65 inches
Mean annual air temperature: 54 to 77 degrees F
Frost-free period: 230 to 283 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Dexter

Setting

Landform: Ridges
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear

Typical profile

Ap - 0 to 8 inches: silt loam
Bw - 8 to 12 inches: silt loam
Bt - 12 to 39 inches: silt loam
2C - 39 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: F134XY306LA - West Central Well Drained Loamy Ridge -
PROVISIONAL
Hydric soil rating: No

Minor Components

Gigger

Percent of map unit: 4 percent
Landform: Terraces
Landform position (three-dimensional): Tread

Custom Soil Resource Report

Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY013TX - Terrace
Hydric soil rating: No

Liddieville

Percent of map unit: 4 percent
Landform: Terraces
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY013TX - Terrace
Hydric soil rating: No

Gilbert

Percent of map unit: 3 percent
Landform: Depressions
Landform position (three-dimensional): Tread
Ecological site: F134XY302LA - West Central Swales/Depressions Wet Flats -
PROVISIONAL
Hydric soil rating: Yes

Forestdale

Percent of map unit: 2 percent
Landform: Depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F134XY302LA - West Central Swales/Depressions Wet Flats -
PROVISIONAL
Hydric soil rating: Yes

Foley

Percent of map unit: 2 percent
Landform: Depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F134XY303LA - West Central Natric Loess Terrace -
PROVISIONAL
Hydric soil rating: Yes

De—Dexter silt loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1vkc4
Elevation: 50 to 130 feet
Mean annual precipitation: 47 to 63 inches
Mean annual air temperature: 54 to 77 degrees F
Frost-free period: 230 to 283 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Dexter and similar soils: 85 percent

Minor components: 15 percent

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

Description of Dexter

Setting

Landform: Ridges

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Linear

Typical profile

Ap - 0 to 6 inches: silt loam

Bw - 6 to 10 inches: silt loam

Bt - 10 to 32 inches: silt loam

2C - 32 to 67 inches: fine sandy loam

Properties and qualities

Slope: 1 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)*

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: B

*Ecological site: F134XY306LA - West Central Well Drained Loamy Ridge -
PROVISIONAL*

Hydric soil rating: No

Minor Components

Gigger

Percent of map unit: 4 percent

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Linear

Ecological site: F133BY013TX - Terrace

Hydric soil rating: No

Gilbert

Percent of map unit: 4 percent

Landform: Depressions

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Linear

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Ecological site: F134XY302LA - West Central Swales/Depressions Wet Flats -
PROVISIONAL
Hydric soil rating: Yes

Liddieville

Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY013TX - Terrace
Hydric soil rating: No

Necessity

Percent of map unit: 2 percent
Landform: Ridges
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY012TX - Wet Terrace
Hydric soil rating: No

Foley

Percent of map unit: 1 percent
Landform: Depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F134XY303LA - West Central Natric Loess Terrace -
PROVISIONAL
Hydric soil rating: Yes

Forestdale

Percent of map unit: 1 percent
Landform: Swales
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F134XY302LA - West Central Swales/Depressions Wet Flats -
PROVISIONAL
Hydric soil rating: Yes

Df—Dexter silt loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vkc5
Elevation: 50 to 130 feet
Mean annual precipitation: 47 to 65 inches
Mean annual air temperature: 54 to 77 degrees F
Frost-free period: 230 to 283 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Dexter and similar soils: 85 percent

Minor components: 15 percent

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

Description of Dexter

Setting

Landform: Ridges

Down-slope shape: Convex

Across-slope shape: Linear

Typical profile

Ap - 0 to 9 inches: silt loam

Bw - 9 to 14 inches: silt loam

Bt - 14 to 43 inches: silt loam

2C - 43 to 60 inches: fine sandy loam

Properties and qualities

Slope: 3 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Ecological site: F134XY306LA - West Central Well Drained Loamy Ridge -
PROVISIONAL

Hydric soil rating: No

Minor Components

Gigger

Percent of map unit: 4 percent

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Linear

Ecological site: F133BY013TX - Terrace

Hydric soil rating: No

Gilbert

Percent of map unit: 3 percent

Landform: Depressions

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Linear

Ecological site: F134XY302LA - West Central Swales/Depressions Wet Flats -
PROVISIONAL

Custom Soil Resource Report

Hydric soil rating: Yes

Liddieville

Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY013TX - Terrace
Hydric soil rating: No

Necessity

Percent of map unit: 2 percent
Landform: Ridges
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY012TX - Wet Terrace
Hydric soil rating: No

Egypt

Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F133BY012TX - Wet Terrace
Hydric soil rating: No

Forestdale

Percent of map unit: 1 percent
Landform: Depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F134XY302LA - West Central Swales/Depressions Wet Flats -
PROVISIONAL
Hydric soil rating: Yes

Foley

Percent of map unit: 1 percent
Landform: Depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F134XY303LA - West Central Natric Loess Terrace -
PROVISIONAL
Hydric soil rating: Yes

Eg—Egypt silt loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1vkc8
Elevation: 20 to 130 feet
Mean annual precipitation: 41 to 65 inches
Mean annual air temperature: 55 to 77 degrees F
Frost-free period: 230 to 283 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Egypt

Setting

Landform: Ridges
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 48 inches: silt loam
H3 - 48 to 60 inches: silt loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Sodium adsorption ratio, maximum: 30.0
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Ecological site: F133BY012TX - Wet Terrace
Hydric soil rating: No

Minor Components

Gigger

Percent of map unit: 4 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY013TX - Terrace
Hydric soil rating: No

Dexter

Percent of map unit: 4 percent
Landform: Terraces
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F134XY306LA - West Central Well Drained Loamy Ridge -
PROVISIONAL
Hydric soil rating: No

Foley

Percent of map unit: 3 percent
Landform: Depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F134XY303LA - West Central Natric Loess Terrace -
PROVISIONAL
Hydric soil rating: Yes

Gilbert

Percent of map unit: 2 percent
Landform: Depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F134XY302LA - West Central Swales/Depressions Wet Flats -
PROVISIONAL
Hydric soil rating: Yes

Deerford

Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F134XY303LA - West Central Natric Loess Terrace -
PROVISIONAL
Hydric soil rating: No

Fe—Foley silt loam

Map Unit Setting

National map unit symbol: 1vkc9
Elevation: 50 to 130 feet
Mean annual precipitation: 47 to 65 inches
Mean annual air temperature: 55 to 77 degrees F
Frost-free period: 230 to 283 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Foley

Setting

Landform: Flats
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loess

Typical profile

Ap - 0 to 4 inches: silt loam
Eg - 4 to 9 inches: silt loam
Btg - 9 to 21 inches: silty clay loam
Btng - 21 to 52 inches: silt loam
Cng - 52 to 65 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 9 to 30 inches to natric
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: Rare
Frequency of ponding: None
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F134XY303LA - West Central Natric Loess Terrace -
PROVISIONAL
Hydric soil rating: Yes

Minor Components

Deerford

Percent of map unit: 4 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F134XY303LA - West Central Natric Loess Terrace -
PROVISIONAL
Hydric soil rating: No

Egypt

Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F133BY012TX - Wet Terrace
Hydric soil rating: No

Gilbert

Percent of map unit: 3 percent
Landform: Depressions
Landform position (three-dimensional): Tread
Ecological site: F134XY302LA - West Central Swales/Depressions Wet Flats -
PROVISIONAL
Hydric soil rating: Yes

Dexter

Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Ecological site: F134XY306LA - West Central Well Drained Loamy Ridge -
PROVISIONAL
Hydric soil rating: No

Forestdale

Percent of map unit: 2 percent
Landform: Depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F134XY302LA - West Central Swales/Depressions Wet Flats -
PROVISIONAL
Hydric soil rating: Yes

Ft—Forestdale silty clay loam, 0 to 1 percent slope, occasionally flooded, upland phase

Map Unit Setting

National map unit symbol: 2wf6h
Elevation: 40 to 60 feet
Mean annual precipitation: 55 to 59 inches
Mean annual air temperature: 64 to 65 degrees F
Frost-free period: 206 to 292 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Forestdale

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey and loamy alluvium

Typical profile

Ap - 0 to 4 inches: silty clay loam
Btg - 4 to 31 inches: silty clay
BCg - 31 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Ecological site: F134XY301LA - West Central Flooded Swales And Depressions
And Flood Plains - PROVISIONAL
Hydric soil rating: Yes

Minor Components

Necessity

Percent of map unit: 10 percent

Landform: Ridges

Landform position (three-dimensional): Dip

Down-slope shape: Convex

Across-slope shape: Linear

Ecological site: F134XY303LA - West Central Natric Loess Terrace -
PROVISIONAL

Hydric soil rating: No

Sharkey

Percent of map unit: 5 percent

Landform: Meander scrolls, swales, flood-plain steps

Landform position (three-dimensional): Dip, talf

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Ecological site: F131AY402LA - Tensas Basin - Poorly Drained Backswamp

Hydric soil rating: Yes

Gg—Gigger-Gilbert silt loams, gently undulating

Map Unit Setting

National map unit symbol: 1vkcg

Elevation: 40 to 70 feet

Mean annual precipitation: 41 to 63 inches

Mean annual air temperature: 55 to 77 degrees F

Frost-free period: 230 to 283 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Gigger and similar soils: 55 percent

Gilbert and similar soils: 35 percent

Minor components: 10 percent

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

Description of Gigger

Setting

Landform: Ridges

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Linear

Typical profile

H1 - 0 to 6 inches: silt loam

H2 - 6 to 24 inches: silt loam

H3 - 24 to 34 inches: silt loam

H4 - 34 to 54 inches: silt loam

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H5 - 54 to 65 inches: loam

Properties and qualities

Slope: 1 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 12 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C/D

Ecological site: F133BY013TX - Terrace

Hydric soil rating: No

Description of Gilbert

Setting

Landform: Swales

Down-slope shape: Concave

Across-slope shape: Linear

Typical profile

H1 - 0 to 18 inches: silt loam

H2 - 18 to 37 inches: silt loam

H3 - 37 to 64 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: About 0 to 18 inches

Frequency of flooding: Rare

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very high (about 12.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: D

Ecological site: F134XY302LA - West Central Swales/Depressions Wet Flats - PROVISIONAL

Hydric soil rating: Yes

Minor Components

Dexter

Percent of map unit: 3 percent

Landform: Terraces

Landform position (three-dimensional): Riser

Down-slope shape: Convex

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Across-slope shape: Linear

Ecological site: F134XY306LA - West Central Well Drained Loamy Ridge -
PROVISIONAL

Hydric soil rating: No

Egypt

Percent of map unit: 3 percent

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Ecological site: F133BY012TX - Wet Terrace

Hydric soil rating: No

Necessity

Percent of map unit: 2 percent

Landform: Ridges

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Linear

Ecological site: F133BY012TX - Wet Terrace

Hydric soil rating: No

Foley

Percent of map unit: 2 percent

Landform: Depressions

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Linear

Ecological site: F134XY303LA - West Central Natric Loess Terrace -
PROVISIONAL

Hydric soil rating: Yes

Gk—Gilbert silt loam

Map Unit Setting

National map unit symbol: 1vkch

Elevation: 50 to 70 feet

Mean annual precipitation: 41 to 63 inches

Mean annual air temperature: 55 to 77 degrees F

Frost-free period: 230 to 283 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Gilbert and similar soils: 90 percent

Minor components: 10 percent

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

Description of Gilbert

Setting

Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Linear

Typical profile

H1 - 0 to 16 inches: silt loam
H2 - 16 to 44 inches: silt loam
H3 - 44 to 70 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F134XY302LA - West Central Swales/Depressions Wet Flats - PROVISIONAL
Hydric soil rating: Yes

Minor Components

Egypt

Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F133BY012TX - Wet Terrace
Hydric soil rating: No

Gigger

Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY013TX - Terrace
Hydric soil rating: No

Necessity

Percent of map unit: 2 percent
Landform: Ridges
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear

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Ecological site: F133BY012TX - Wet Terrace

Hydric soil rating: No

Foley

Percent of map unit: 2 percent

Landform: Depressions

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Linear

Ecological site: F134XY303LA - West Central Natric Loess Terrace -
PROVISIONAL

Hydric soil rating: Yes

Ld—Liddieville fine sandy loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vkcr

Elevation: 10 to 70 feet

Mean annual precipitation: 41 to 63 inches

Mean annual air temperature: 55 to 77 degrees F

Frost-free period: 230 to 283 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Liddieville and similar soils: 90 percent

Minor components: 10 percent

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

Description of Liddieville

Setting

Landform: Terraces

Down-slope shape: Convex

Across-slope shape: Linear

Typical profile

H1 - 0 to 5 inches: fine sandy loam

H2 - 5 to 40 inches: loam

H3 - 40 to 49 inches: loam

H4 - 49 to 65 inches: loamy fine sand

Properties and qualities

Slope: 2 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: B

Ecological site: F133BY013TX - Terrace

Hydric soil rating: No

Minor Components

Egypt

Percent of map unit: 3 percent

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Ecological site: F133BY012TX - Wet Terrace

Hydric soil rating: No

Gigger

Percent of map unit: 2 percent

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Linear

Ecological site: F133BY013TX - Terrace

Hydric soil rating: No

Dexter

Percent of map unit: 2 percent

Landform: Terraces

Landform position (three-dimensional): Riser

Down-slope shape: Convex

Across-slope shape: Linear

Ecological site: F134XY306LA - West Central Well Drained Loamy Ridge -

PROVISIONAL

Hydric soil rating: No

Gilbert

Percent of map unit: 2 percent

Landform: Depressions

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Linear

Ecological site: F134XY302LA - West Central Swales/Depressions Wet Flats -

PROVISIONAL

Hydric soil rating: Yes

Necessity

Percent of map unit: 1 percent

Landform: Ridges

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Linear

Ecological site: F133BY012TX - Wet Terrace

Hydric soil rating: No

Ne—Necessity silt loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1vkcx
Elevation: 40 to 70 feet
Mean annual precipitation: 41 to 65 inches
Mean annual air temperature: 55 to 77 degrees F
Frost-free period: 230 to 283 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Necessity

Setting

Landform: Ridges
Down-slope shape: Convex
Across-slope shape: Linear

Typical profile

H1 - 0 to 6 inches: silt loam
H2 - 6 to 29 inches: loam
H3 - 29 to 33 inches: silt loam
H4 - 33 to 60 inches: loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Ecological site: F133BY012TX - Wet Terrace
Hydric soil rating: No

Minor Components

Gilbert

Percent of map unit: 5 percent

Custom Soil Resource Report

Landform: Depressions

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Linear

Ecological site: F134XY302LA - West Central Swales/Depressions Wet Flats -
PROVISIONAL

Hydric soil rating: Yes

Egypt

Percent of map unit: 3 percent

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Ecological site: F133BY012TX - Wet Terrace

Hydric soil rating: No

Dexter

Percent of map unit: 3 percent

Landform: Terraces

Landform position (three-dimensional): Riser

Down-slope shape: Convex

Across-slope shape: Linear

Ecological site: F134XY306LA - West Central Well Drained Loamy Ridge -
PROVISIONAL

Hydric soil rating: No

Deerford

Percent of map unit: 2 percent

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F134XY303LA - West Central Natric Loess Terrace -
PROVISIONAL

Hydric soil rating: No

Gigger

Percent of map unit: 2 percent

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Linear

Ecological site: F133BY013TX - Terrace

Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Land Classifications

This folder contains a collection of tabular reports that present a variety of soil groupings. The reports (tables) include all selected map units and components for each map unit. Land classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Prime and other Important Farmlands

This table lists the map units in the survey area that are considered important farmlands. Important farmlands consist of prime farmland, unique farmland, and farmland of statewide or local importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland 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 quality, 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. The water supply is dependable and of adequate quality. Prime farmland 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.

For some of the soils identified in the table as prime farmland, 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.

A recent trend in land use in some areas 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.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

In some areas that are not identified as having national or statewide importance, land is considered to be *farmland of local importance* for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

Report—Prime and other Important Farmlands

Custom Soil Resource Report

Prime and other Important Farmlands—Richland Parish, Louisiana		
Map Symbol	Map Unit Name	Farmland Classification
Dd	Dexter silt loam, 0 to 1 percent slopes	All areas are prime farmland
De	Dexter silt loam, 1 to 3 percent slopes	All areas are prime farmland
Df	Dexter silt loam, 3 to 5 percent slopes	All areas are prime farmland
Eg	Egypt silt loam, 1 to 3 percent slopes	All areas are prime farmland
Fe	Foley silt loam	Not prime farmland
Ft	Forestdale silty clay loam, 0 to 1 percent slope, occasionally flooded, upland phase	Not prime farmland
Gg	Gigger-Gilbert silt loams, gently undulating	All areas are prime farmland
Gk	Gilbert silt loam	All areas are prime farmland
Ld	Liddieville fine sandy loam, 2 to 5 percent slopes	All areas are prime farmland
Ne	Necessity silt loam, 1 to 3 percent slopes	All areas are prime farmland

Soil Chemical Properties

This folder contains a collection of tabular reports that present soil chemical properties. The reports (tables) include all selected map units and components for each map unit. Soil chemical properties are measured or inferred from direct observations in the field or laboratory. Examples of soil chemical properties include pH, cation exchange capacity, calcium carbonate, gypsum, and electrical conductivity.

Chemical Soil Properties

This table 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 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. 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.

Effective cation-exchange capacity refers to the sum of extractable cations plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. It 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.

Gypsum is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

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 saturated hydraulic conductivity and aeration, and a general degradation of soil structure.

Custom Soil Resource Report

Chemical Soil Properties—Richland Parish, Louisiana								
Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100g</i>	<i>meq/100g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
Dd—Dexter silt loam, 0 to 1 percent slopes								
Dexter	0-8	5.0-15	—	4.5-7.3	0	0	0	0
	8-12	—	5.0-15	4.5-6.0	0	0	0	0
	12-39	—	8.0-25	4.5-6.0	0	0	0	0
	39-60	—	2.0-20	4.5-6.0	0	0	0	0
De—Dexter silt loam, 1 to 3 percent slopes								
Dexter	0-6	5.0-15	—	4.5-7.3	0	0	0	0
	6-10	—	5.0-15	4.5-6.0	0	0	0	0
	10-32	—	8.0-25	4.5-6.0	0	0	0	0
	32-67	—	2.0-20	4.5-6.0	0	0	0	0
Df—Dexter silt loam, 3 to 5 percent slopes								
Dexter	0-9	5.0-15	—	4.5-7.3	0	0	0	0
	9-14	—	5.0-15	4.5-6.0	0	0	0	0
	14-43	—	8.0-25	4.5-6.0	0	0	0	0
	43-60	—	2.0-20	4.5-6.0	0	0	0	0
Eg—Egypt silt loam, 1 to 3 percent slopes								
Egypt	0-10	4.0-15	—	4.5-6.5	0	0	0	0
	10-48	4.0-25	—	4.5-6.5	0	0	0	0-25
	48-60	10-30	—	6.6-9.0	0	0	0	10-30

Custom Soil Resource Report

Chemical Soil Properties—Richland Parish, Louisiana								
Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100g</i>	<i>meq/100g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
Fe—Foley silt loam								
Foley	0-4	5.0-15	—	4.5-7.3	0	0	0	0
	4-9	10-25	—	5.1-7.3	0	0	0	0
	9-21	10-30	—	5.1-9.0	0	0	0	1-5
	21-52	10-30	—	6.6-9.0	0	0	0	1-5
	52-65	10-30	—	6.6-9.0	0	0	0	1-5
Ft—Forestdale silty clay loam, 0 to 1 percent slope, occasionally flooded, upland phase								
Forestdale	0-4	22-30	—	4.5-6.0	0	0	0	0
	4-31	24-42	—	4.5-6.5	0	0	0	0
	31-60	18-24	—	5.6-7.3	0	0	0	0
Gg—Gigger-Gilbert silt loams, gently undulating								
Gigger	0-6	—	4.0-15	3.6-6.0	0	0	0	0
	6-24	—	5.0-20	3.6-6.0	0	0	0	0
	24-34	—	8.0-25	4.5-6.0	0	0	0	0
	34-54	—	5.0-20	4.5-6.0	0	0	0	0
	54-65	—	5.0-20	4.5-6.0	0	0	0	0
Gilbert	0-18	—	1.8-8.3	4.5-6.0	0	0	0	0
	18-37	—	5.3-12	4.5-6.0	0	0	0	0
	37-64	9.1-18	—	6.6-9.0	0	0	0	0

Custom Soil Resource Report

Chemical Soil Properties—Richland Parish, Louisiana								
Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100g</i>	<i>meq/100g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
Gk—Gilbert silt loam								
Gilbert	0-16	—	1.8-8.3	4.5-6.0	0	0	0	0
	16-44	—	5.3-12	4.5-6.0	0	0	0	0
	44-70	9.1-18	—	6.6-9.0	0	0	0	0
Ld—Liddieville fine sandy loam, 2 to 5 percent slopes								
Liddieville	0-5	4.0-15	—	4.5-7.3	0	0	0	0
	5-40	5.0-25	—	4.5-7.3	0	0	0	0
	40-49	4.0-15	—	4.5-7.3	0	0	0	0
	49-65	2.0-15	—	4.5-7.3	0	0	0	0
Ne—Necessity silt loam, 1 to 3 percent slopes								
Necessity	0-6	—	5.0-15	4.5-6.0	0	0	0	0
	6-29	—	5.0-20	4.5-6.0	0	0	0	0
	29-33	—	5.0-15	4.5-6.0	0	0	0	0
	33-60	5.0-25	—	4.5-6.5	0	0	0	0

Water Management

This folder contains a collection of tabular reports that present soil interpretations related to water management. The reports (tables) include all selected map units and components for each map unit, limiting features and interpretive ratings. Water management interpretations are tools for evaluating the potential of the soil in the application of various water management practices. Example interpretations include pond reservoir area, embankments, dikes, levees, and excavated ponds.

Ponds and Embankments

This table 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 saturated hydraulic conductivity (Ksat) 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 5 or 6 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

Custom Soil Resource Report

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, Ksat 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.

Information in this table 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 table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Ponds and Embankments

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Ponds and Embankments—Richland Parish, Louisiana							
Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Aquifer-fed excavated ponds		Pond reservoir areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Dd—Dexter silt loam, 0 to 1 percent slopes							
Dexter	85	Somewhat limited		Very limited		Very limited	
		Piping	0.50	Depth to water	1.00	Seepage	1.00
		Dusty	0.10				
De—Dexter silt loam, 1 to 3 percent slopes							
Dexter	85	Somewhat limited		Very limited		Very limited	
		Dusty	0.10	Depth to water	1.00	Seepage	1.00

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Ponds and Embankments—Richland Parish, Louisiana							
Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Aquifer-fed excavated ponds		Pond reservoir areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Df—Dexter silt loam, 3 to 5 percent slopes							
Dexter	85	Somewhat limited		Very limited		Very limited	
		Piping	0.50	Depth to water	1.00	Seepage	1.00
		Dusty	0.10			Slope	0.08
Eg—Egypt silt loam, 1 to 3 percent slopes							
Egypt	85	Very limited		Very limited		Not limited	
		Depth to saturated zone	1.00	Depth to water	1.00		
		Piping	1.00				
		Dusty	0.11				
Fe—Foley silt loam							
Foley	85	Very limited		Very limited		Not limited	
		Depth to saturated zone	1.00	Depth to water	1.00		
		Piping	0.50				
		Dusty	0.10				
Ft—Forestdale silty clay loam, 0 to 1 percent slope, occasionally flooded, upland phase							
Forestdale	85	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	1.00	Slow refill	0.28	Seepage	0.72
		Dusty	0.09	Unstable excavation walls	0.10		
Gg—Gigger-Gilbert silt loams, gently undulating							
Gigger	55	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to water	1.00	Depth to cemented pan	0.98
		Piping	0.50			Seepage	0.72
		Dusty	0.11				
Gilbert	35	Very limited		Very limited		Not limited	
		Depth to saturated zone	1.00	Depth to water	1.00		
		Piping	0.50				
		Dusty	0.11				

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Ponds and Embankments—Richland Parish, Louisiana							
Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Aquifer-fed excavated ponds		Pond reservoir areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Gk—Gilbert silt loam							
Gilbert	90	Very limited		Very limited		Not limited	
		Depth to saturated zone	1.00	Depth to water	1.00		
		Piping	0.50				
		Dusty	0.11				
Ld—Liddieville fine sandy loam, 2 to 5 percent slopes							
Liddieville	90	Somewhat limited		Very limited		Very limited	
		Piping	0.50	Depth to water	1.00	Seepage	1.00
		Dusty	0.05			Slope	0.08
Ne—Necessity silt loam, 1 to 3 percent slopes							
Necessity	85	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to water	1.00	Depth to cemented pan	0.77
		Dusty	0.09			Seepage	0.04

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Ecological site

West Central Natric Loess Terrace - PROVISIONAL

General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

MLRA notes

Major Land Resource Area (MLRA): 134X–Southern Mississippi Valley Loess

MLRA 134, Southern Mississippi Valley Loess, is in Mississippi (39 percent), Tennessee (23 percent), Louisiana (15 percent), Arkansas (11 percent), Kentucky (9 percent), Missouri (2 percent), and Illinois (1 percent). It makes up about 26,520 square miles (68,715 square kilometers). The northern part of the area includes Paducah and Murray, Kentucky; Paragould, Jonesboro, and Forrest City, Arkansas; and Memphis, Dyersburg, Bartlett, and Germantown, Tennessee. The southern part includes Yazoo City, Clinton, and Jackson, Mississippi, and Baton Rouge, Opelousas, Lafayette, and New Iberia, Louisiana. This portion is the central western part of the MLRA in Louisiana and Arkansas. It is in the Macon Ridge Section of the EPA Ecoregions in sub-section 73j. The dissected plains in this MLRA have a loess mantle that is thick at the valley wall and thins rapidly as distance from the valley wall increases. This portion of the MLRA is distinct from other portions of the MLRA because of the influences of the Mississippi River and its series of entrenchments and adjacent old channels of the Arkansas River, such channels as Bayou Bartholomew, Bayou Bonne Idee, Boeuf River, and segments of the Ouachita River. The Macon Ridge has been inhabited prior to European Settlement, Poverty Point is located on the east central portion of the Macon Ridge and has earthworks dating back to 1700-1100 BC.

Classification relationships

Major Land Resource Area (MLRA) and Land Resource Unit (LRU) (USDA-Natural Resources Conservation Service, 2006)

EPA Level IV Ecoregion

The Natural Communities of Louisiana - (Louisiana Natural Heritage Program - Louisiana

Ecological site concept

Nearly level Somewhat Poorly to Poorly Drained, natric (sodium), thin local loess alluvium mixed with clayey alluvium over braided stream material. The site is found on level to depressional broad flats on terraces of the Macon Ridge. It is a complex of wet & dry Sodic communities. Limitations of this site include a potential for a high or perched water table, with potential for high exchangeable Al (Aluminum). This soil chemistry limitation are significant because, Aluminum (Al) toxicity limits production on strongly acidic soils, pH values at or below 5. Toxic forms of Al solubilized into the soil solution, inhibiting root growth and function (Kochian et al). Sodicty splits this site from other sites. Range of variability for drainage class could separate this into 2 sites with additional data. Delta Post oak, Willow oak, Winged Elm and Cherrybark oak occur on the site and Loblolly pine on the better drained areas. A Hardwood Forest plant community exists with exclusion of fire, however, if fire is introduced the plant community shifts to a Savanna plant community dominated by Delta Post Oak and Three Awn. These types of communities would have persisted under natural conditions and with the management of Native Americans.

Associated sites

F134XY304LA	West Central Somewhat Poorly Drained Flats - PROVISIONAL Similar to this site with additional limitations of Natric soil properties.
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Similar sites

F134XY304LA	West Central Somewhat Poorly Drained Flats - PROVISIONAL Similar to this site with additional limitations of Natric soil properties.
-------------	--

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

Macon Ridge in extreme northeastern Louisiana and southeastern Arkansas is a 135-mile long prominent ridge that lies between the Boeuf and Tensas Basins. It reaches a maximum width of about 25 miles in northeastern Louisiana about 30 miles north of Sicily Island. The ridge is consistently higher on its eastern side where elevations are 20 to 30 feet higher than in the adjacent Tensas Basin (floodplain). On the western side, elevations of the ridge are approximately the same as those in the Boeuf Basin, and it is sometimes difficult to distinguish the two at the surface. Macon Ridge consists almost entirely of Early

Wisconsin age glacial outwash and is a continuation of the valley train in the Western Lowlands” (Saucier, 1994).

Macon Ridge is a terrace that features level to gently undulating topography with steep scarps of uplands, floodplains, depressions, and drainageways. The entire area is located within the Mississippi Alluvial Valley section of the Coastal Plain Province of the Atlantic Plain. The entire Macon Ridge is underlain by Pleistocene-aged loamy and clayey braided stream alluvium from the “old” Arkansas River. The area mantled by loess on the eastern edge of the terrace rises 10 to 30 feet above the floodplains. The loess thins toward the west, and elevation decreases. The loess in the western part of Macon Ridge contains small mixtures of the older underlying braided-stream terrace alluvium, and in even lower elevations, the loess contains mixtures of recent clayey alluvium or is buried completely beneath recent alluvium (T. E. Allen, USDA-NRCS Richland Parish Soil Survey Report, 1993).

This PES occurs on silty broad flats and depressional areas on the Macon Ridge in Arkansas and Louisiana. Slopes are level (0 to 1%). The site occurs on terraces, flats, and depressions of the loess-mantled Macon Ridge braided-stream terrace. These soils are fine-silty to a depth of 80 inches or more, with a high content of sodium in the subsoil. These sites include floodplains, depressions and drainageways of Caney Bayou, Indian Bayou, Big Colewa Creek, Big Creek and Old Big Creek, Little Creek, Bee Bayou, Bulls Bayou, Muddy Bayou, Turkey Creek, Ash Slough, Daves Bayou, and Deer Creek.

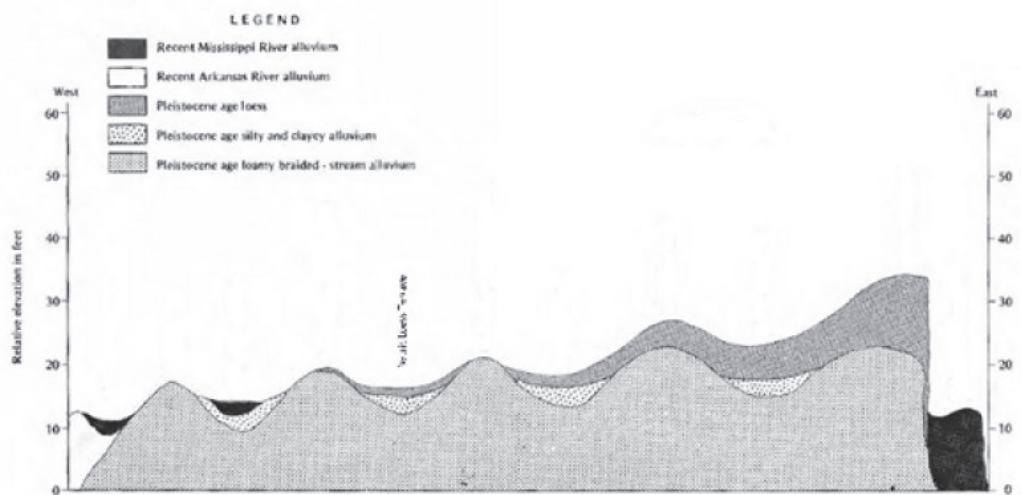


Figure 1. 134XY303PES Landscape Diagram

Table 2. Representative physiographic features

Landforms	(1) Terrace (2) Flat (3) Depression
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Flooding duration	Brief (2 to 7 days)
Flooding frequency	None to rare
Ponding frequency	None
Elevation	60–95 ft
Slope	0–1%
Ponding depth	0 in
Water table depth	12–36 in
Aspect	Aspect is not a significant factor

Climatic features

The climate of North East Louisiana and South East Arkansas is warm and humid with a monthly precipitation that is well distributed throughout the year. The monthly precipitation mean is between 2.9 and 5.3 inches, with the lowest rainfall occurring from June through November. The following climatic data are averages from the three weather stations listed below. Temperature and precipitation may vary considerably from that listed for each month. Site specific weather data should be used for land management decisions. For site specific weather conditions, obtain data from a weather station close to the site.

Table 3. Representative climatic features

Frost-free period (average)	227 days
Freeze-free period (average)	263 days
Precipitation total (average)	59 in

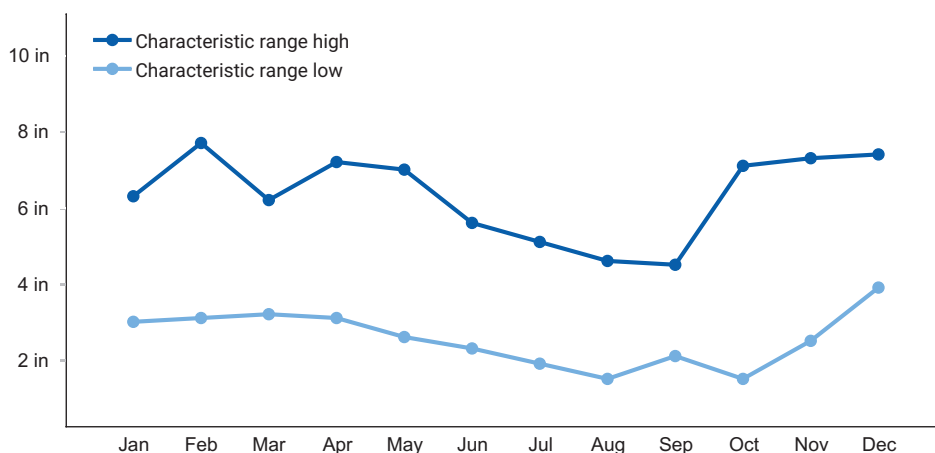


Figure 2. Monthly precipitation range

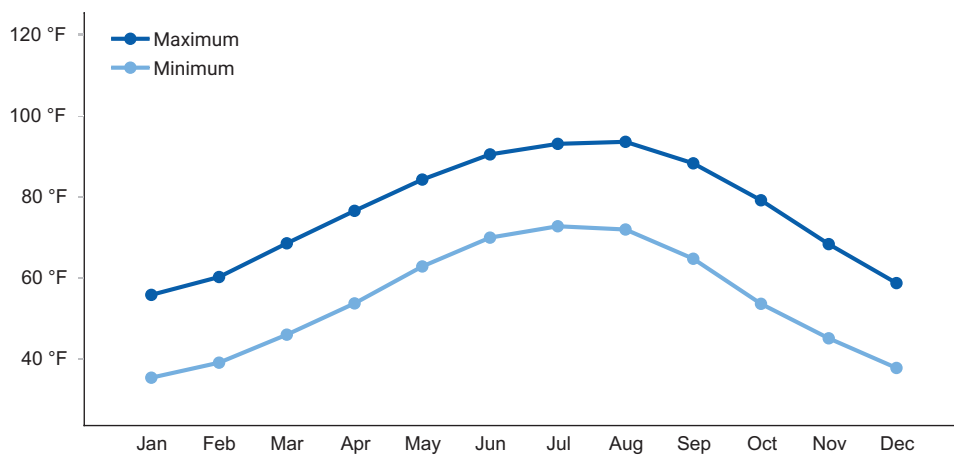


Figure 3. Monthly average minimum and maximum temperature

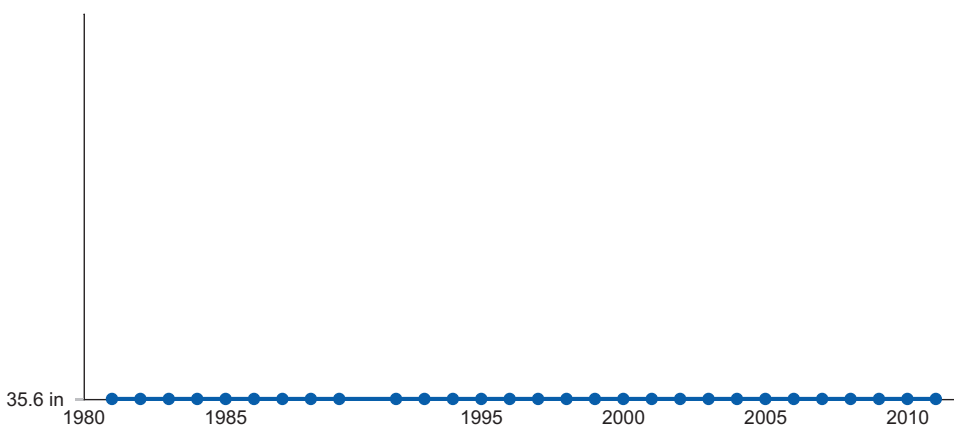


Figure 4. Annual precipitation pattern

Climate stations used

- (1) EUDORA [USC00032355], Eudora, AR
- (2) RAYVILLE [USC00167691], Rayville, LA
- (3) WINNSBORO 5 SSE [USC00169806], Winnsboro, LA

Influencing water features

Hydrology on this site is very important and when water is limited by drought or removal by other means vegetative composition will be affected by soil chemistry. The Sodium (Na) and Aluminum (Al) that is present in the soils of this site will dictate growth, production and species composition in a more drastic manner when moisture is limited. This will be readily seen in cropland when prolonged dryness occurs and will present as areas within a field that are stressed or plants will die.

These sites are generally found in depressions where water from adjacent areas accumulates. This is also a contributor to the development of the sites because this runoff from adjacent areas can carry additional Al & Na. These accumulate when the water that carries them evaporates and leaves them behind to concentrate in the soil.

Soil features

Foley, Deerford

Soils of this site are poorly drained, Albic Glossic Natraqualfs (Foley), and somewhat poorly drained, Albic Glossic Natraqualfs (Deerford) that have a high content of sodium in the subsoil. These soils formed in silty material, water-reworked loess sediments of late Pleistocene Age. Slopes range from 0 to 2 percent. These very deep, slowly and very slowly permeable soils are found in broad flats and narrow depressional areas in the terrace uplands. Foley soil map units are considered hydric and the perched water table is within 1 to 3 feet of the surface during winter and spring months in normal years. Deerford soil map units are considered non-hydric and the perched water table is within 1 to 1.5 feet of the surface during winter and spring months in normal years. These soils are subject to none to rare flooding for brief duration.

Natraqualfs (sodium soils) are commonly found throughout the loessal regions of the U.S. The sodium in these soils originated from in-situ weathering of Na-rich feldspars of the parent loess. The natric soil horizons act as a root restriction layer. Natric horizons typically have compound soil structure consisting of prismatic parting to subangular blocky structure. The natric horizons are dense with firm consistency and brittleness. The horizons also have very low hydraulic conductivity and tend to perch water during wet periods. The natric horizons are often considerably drier than overlying horizons. It is important not only to recognize salinity stress and toxicity, but also to determine where the sodium problem is located in the soil profile. Accelerated erosion and land leveling can truncate the surface soil and expose the underlying natric horizons with disastrous consequences. (Pettry, 1998).

Bare soil areas in agricultural fields essentially devoid of vegetation, or containing stunted and dead plants, have been referred to as slick-spots, salt-spots, and deer licks. Areas range in size from less than an acre to entire fields. Crops have different sensitivities to elevated salt contents. Generally, cotton and bermudagrass are more tolerant than corn and soybeans. Seasonal changes in soil moisture affect the ability of crops to tolerate high salt levels. Greater soil moisture at spring planting may maintain low enough levels for plant establishment and growth; however drier conditions in mid-summer may concentrate salt levels to a point at which they become toxic to the plant. Plants stressed from high sodium levels often exhibit various symptoms of nutritional disorders due to competitive uptake of ions. The exposed surface soil commonly has a light-colored, bleached appearance and is vulnerable to accelerated surface erosion. Salt-impacted areas are not as evident in forests, but the impact can be seen in areas containing stunted trees.

Natric soils commonly have poor physical conditions due to dispersive properties associated with sodium that negatively impact reclamation. The poor physical conditions reduce permeability to air and water movement. These adverse properties give rise to the observable physical characteristics of the soil being sticky when wet and hard when dry.

Early reclamation of sodic soils used ponded water to leach salts below the root zone in arid regions, but these practices often required long periods of time and could not flush the salts due to low soil permeability. Sodium must be displaced on the soil exchange complex and leached from the soil to remediate the Na-toxicity and improve physical conditions. Gypsum is commonly used for reclamation of sodic soils. The amount of gypsum need to displace sodium depends on soil texture, cation exchange capacity, and sodium content. Large quantities of organic matter incorporated into the soil at gypsum application can increase replacement efficiency. The organic matter improves soil structure and drainage, increases cation exchange capacity and water holding capacity (Pettry, 1998).

Table 4. Representative soil features

Surface texture	(1) Silt loam
Family particle size	(1) Loamy
Drainage class	Somewhat poorly drained to poorly drained
Permeability class	Slow to very slow
Soil depth	60–80 in
Surface fragment cover ≤ 3 "	0%
Surface fragment cover > 3 "	0%
Available water capacity (0-40in)	0.12–0.24 in
Electrical conductivity (0-40in)	0 mmhos/cm
Sodium adsorption ratio (0-40in)	1–20
Soil reaction (1:1 water) (0-40in)	4.5–9
Subsurface fragment volume ≤ 3 " (Depth not specified)	0%
Subsurface fragment volume > 3 " (Depth not specified)	0%

Ecological dynamics

Very little exists in the literature concerning natural vegetation communities on high sodium soils east of the Mississippi River. A little more information has been documented and reported on the western counterpart of this site, which occurs within the Western Lowlands ecoregion of eastern Arkansas and southeastern Missouri. The following treatment regarding the plant communities and ecological dynamics of this site are drawn from existing literature and observations of the western counterpart.

This ecological site occurs primarily on Pleistocene-age terraces and potentially along the margins of alluvial floodplains. The site is characterized by soils that are high in exchangeable sodium. These “edaphic” effects (i.e., ecological influences from soil properties) have tremendous impacts on the local plant community. Where depths are shallow to a high sodium exchange horizon, limitations to rooting depth generally results in poor vegetation response. Communities that develop under these conditions often consist of stunted trees, low-quality woodlands, and open spots of bare ground (Heineke, 1987). An additional characteristic of this site is the occasional presence of small, shallow depressions that pond during wetter periods of the year, generally in late winter to spring. These vernal pools may contribute to habitat complexity and the occurrence of additional species into an otherwise, naturally depauperate community.

The dominant species associated with the non-ponded portions of this site is post oak with associates consisting of blackjack oak, southern red oak, honey locust, hawthorn, and winged elm (USDA-NRCS, 2016). Farther to the south, loblolly pine may occur in locations where depth to the natric subsoils are deeper. (This pattern may be more associated with Deerford soils, which is currently under review.) Structurally, the site is relatively open, which provides conditions suitable for the development of an herbaceous ground layer. Ground cover may consist of poverty oat grass, threeawns, dropseeds, and sedges. Vernal pools of this site may consist of a greater concentration of water oak and willow oak, but this has not been substantiated on this site.

Historically, fire may have been a factor or influence on this site, and a range of habitat or community types likely existed. Where trees occurred, conditions probably ranged from savanna to open woodlands. Locally, prairies likely existed in a patchwork pattern among the woodlands. This mosaic likely persisted as a “physiognomic gradient” with meadows grading to savannas and savannas grading to woodlands.

Today, various land use activities have been attempted on this site. Some areas that were once cleared and farmed are now idle. Such

abandoned areas may now support a moderate cover of poor quality oaks and hickory. However, there are some areas of this site under cultivation. Those sites generally occur on the deeper soils (i.e., depths to natric subhorizons are fairly deep, greater than 24 inches). Where rooting depths to natric subsoils are shallow, yields are likely to be poor and those spots avoided (Pettry and Switzer, 1998).

A minor use on this site is reportedly pastureland and hayland, though grazing periods may be limited to shorter periods in the spring (USDA-NRCS, 2016). The more productive pastures are mainly limited to areas where the depth to natric subsoils are much greater. Limitations for pastureland and/or hayland are the same as those for cropland (i.e., seasonal wetness and high sodium content).

Woodland or forest production on this site is generally poorly suited on these soils (USDA-NRCS, 2003; USDA-NRCS, 2016). However, Deerford soils reportedly have a higher potential for loblolly pine, sweetgum, and water oak (USDA-SCS, 1978). Based on what is currently known regarding extreme saline sites to the west in Arkansas and southeast Missouri (see Heineke, 1987; and personal observations, B. Hart), a timber management state is not included for this provisional site at this time. Future inventories and investigations may dictate that timber management should be included as a management option. Those efforts may also suggest that a separate ecological site is warranted for those soils possessing greater depths to the natric subsoil.

Following this narrative, a “provisional” state and transition model is provided that includes the “perceived” reference state and several alternative (or altered) vegetation states that have been observed and/or projected for the Northern Natric Loess Terrace ecological site. This model is based on limited inventories, literature, expert knowledge, and interpretations. Plant communities will differ across MLRA 134 due to natural variability in climate, soils, and physiography. Depending on objectives, the reference plant community may not necessarily be the management goal.

The environmental and biological characteristics of this site are complex and dynamic. As such, the following diagram suggests pathways that the vegetation on this site might take, given that the modal concepts of climate and soils are met within an area of interest. Specific locations with unique soils and disturbance histories may have alternate pathways that are not represented in the model. This information is intended to show the possibilities within a given set of circumstances and represents the initial steps toward developing a defensible description and model. The model and associated information are subject to change as knowledge increases and new information is garnered. This is an iterative

process. Most importantly, local and/or state professional guidance should always be sought before pursuing a treatment scenario.

State and transition model

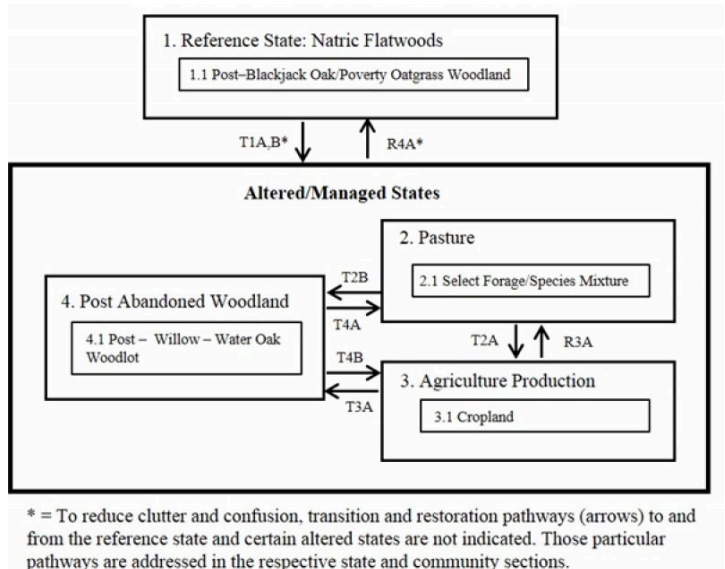


Figure 5. STM -

Pathway	Practice
T1A, R3A, T4A	mechanical removal of vegetation; herbicide application; seedbed preparation; planting desired species at appropriate rate (State 2)
T1B, T2A, T4B	mechanical removal of vegetation; potential construction of artificial drainage system, preparation for cultivation (State 3)
T2B, T3A	natural succession (State 4)
R4A	natural succession; return of maintenance or disturbance (e.g., fire); any former alteration to soil drainage MUST be restored before returning to true reference conditions (State 1)

Figure 6. Legend -

State 1 Natric Flatwoods

The following treatment of the reference state is based on observations and literature review of similar soils in the Western Lowlands ecoregion in eastern Arkansas and southeast Missouri. Field investigations must be conducted to adequately and accurately describe the plant communities and ecological dynamics of this site east of Mississippi River. The key factors influencing the plant community of this site are the soils. The high exchangeable sodium of the subsoil limits the types of plants that can tolerant these extreme conditions. Heineke (1987) compared the natural community of this site to the "...xeric, acidic, rocky bluffs of the Ozark Plateau." The trees are stunted, twisted, and small with diameters that seldom reach 12 inches. Heineke reported an instance where trees below 12 inches had ages of 170 years, and the structure of the stand was park-like with much of the ground surface being covered by lichens. The pre-settlement community of this ecological site may have consisted of a complex of physiognomic characteristics that included meadow or barren-like conditions, savannas, and open woodlands. Fire may have been a key disturbance factor, historically, particularly where fires extended onto this site from adjoining or nearby areas. Barren-like conditions (i.e., local bare spots) may have existed locally where depths to natric horizons were very shallow. Such "bare spots" would represent pedons of extreme root restriction.

Community 1.1 Post Oak – Blackjack Oak – Poverty Oatgrass Woodland

This community phase represents the successional stage, compositional, and structural complexity of stands supporting perceived reference conditions. Post oak is reported as the dominant species on this site; however willow oak and water oak may occur within small, shallow depressions (Klimas et al., 2012). These depressions or vernal pools are ponded only during the wetter times of the year, typically from winter to spring. Additional components and characteristics of the system include the presence of blackjack oak with an understory of hawthorn, persimmon, winged elm, and farkleberry. Ground cover may consist of blazing star, poverty oatgrass, broomsedge, woodoats, and tridens. Most notable of the ground layer is the coverage of lichens and mosses, which are interspersed by areas of bare ground. The reference community is noted for having an open woodland profile. The subcanopy stratum is open throughout much of the community and the ground layer is thinly covered (Heineke, 1987).

State 2 Pasture

This state is representative of sites that have been converted to and maintained in pasture and forage cropland, typically a grass – legume mixture. However, soils exhibiting the core concepts of this site (i.e., a relatively shallow depth to a root restriction layer of high sodium content), are known for producing poor pasturage. Areas where natric horizons are deeper have a much better chance in pasture development and management. Planning or prescribing the intensity, frequency, timing, and duration of grazing can help maintain desirable forage mixtures at sufficient density and vigor (USDA-NRCS, 2010; Green et al., 2006). Overgrazed pastures can lead to soil compaction and numerous bare spots, further complicating the natural limitations of this site. Because of the limitations of this site, grazing may be limited to small intervals within the appropriate season(s). These soils have low available water capacity, low nutrients, and are prone to droughtiness. It is strongly advised that consultation with State Grazing Land Specialists and District Conservationists at local NRCS Service Centers be sought when assistance is needed in developing management recommendations or prescribed grazing practices on this site.

Community 2.1 Select Forage/Species Mixture

This community phase represents commonly planted forage species on pasturelands, haylands, and open grasslands. The suite of plants established on any given site may vary considerably depending upon purpose, management goals, usage, and soils. The limitations of this site preclude many of the commonly planted mixtures. However, there is some indication that tall fescue, common bermudagrass, and annual lespedeza have been planted on this site, but yields are reported as low (USDA-NRCS, 2006b). This site is generally considered poorly suited to not suited for this land use (USDA-NRCS, 2003; USDA-NRCS, 2006b). Should active management (and grazing) of the pastureland be halted, this phase will transition to "old field" conditions, which is the

transitional period between a predominantly open, herbaceous field and the brushy stage of a newly initiated stand of trees.

State 3 Agriculture Production

Agriculture production on this site is fairly limited. Crops that are or have been grown include soybean and cotton but plants may be stunted and often will not reach maturity (Pettry and Switzer, 1998; USDA-SCS, 1978). Many idle woodlots today were likely cropped at some point in the past and met with disappointing results.

Community 3.1 Cropland

Soybean and cotton have been planted on this site. Poor yields may result where depths to the natric horizon is shallow.

State 4 Post Abandoned Woodland

Most, if not all, of the woodlots and local patches of woodlands occurring on this site represent this state. Former cropland and pastureland that failed to meet expectations were abandoned and are now considered "idle". These stands still support some of the components that characterizes the community. The structure of these stands are typically denser than a late development, fire-influenced stand. However, small openings and a ground cover of herbaceous species provide indications of strong edaphic influences. Restoration potential of these sites back to reference conditions may be fairly high, provided the appropriate management regime is initiated and maintained. Where depth to the natric subsoil is much greater, productivity and plant composition may be very different. More work is needed to ascertain the full characteristics of this ecological site.

Community 4.1 Post – Willow – Water Oak Woodlot

This community phase represents the species characteristic of the regenerating woodlots. Post oak is often the dominant species with associates consisting of willow oak, water oak, southern red oak, hickory, and winged elm. Loblolly pine may be an additional component to the south, especially where depth to the natric subsoil is greater.

Transition T1A State 1 to 2

This pathway represents an attempt to convert the woodland community to pasture or forage production. Actions include clearing, stump removal, herbicide application, seedbed preparation, and the establishment of desired plants (State 2).

Transition T1B State 1 to 3

Actions include mechanical removal of vegetation and stumps; herbicide treatment of residual plants; and preparation for cultivation (State 3).

Transition T2A State 2 to 3

Actions include removal of vegetation or pasturage; herbicide treatment of residual plants; and preparation for crop establishment.

Transition T2B State 2 to 4

Abandonment of grassland/pastureland management and allowing natural succession to proceed beyond the old field stage to canopy development of the young woodland.

Transition R3A State 3 to 2

Seedbed preparation and establishment of desired forage/grassland mixture.

Transition T3A State 3 to 4

Abandonment of cropland management and allowing natural succession to proceed to canopy development of the young woodland.

Restoration pathway R4A State 4 to 1

This pathway represents natural succession back to perceived reference conditions. The period required for this transition to take place likely varies by location and is dependent upon local site conditions. In some cases, a return to the reference state may not be possible without considerable management effort. That effort may involve exotic species control, restoration of the natural hydrologic regime of a given locality, and the reestablishment of components considered characteristic of the reference state.

Transition T4A State 4 to 2

This pathway represents an attempt to convert the woodland community to pasture or forage production. Actions include clearing, stump removal, herbicide application, seedbed preparation, and the establishment of desired plants (State 2).

Transition T4B State 4 to 3

Actions include mechanical removal of vegetation and stumps; herbicide treatment of residual plants; and preparation for cultivation (State 3).