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

Payne County, Oklahoma

March 28, 2012

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://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

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 Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the 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.

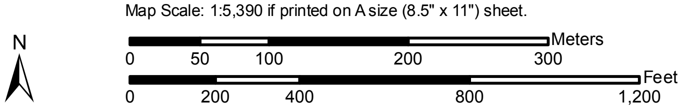
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in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

Map Scale: 1:5,390 if printed on A size (8.5" x 11") sheet.



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

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

- Gully
- Short Steep Slope
- Other

Political Features

- Cities

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:5,390 if printed on A size (8.5" × 11") sheet.

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 accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 14N NAD83

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

Soil Survey Area: Payne County, Oklahoma
Survey Area Data: Version 11, Sep 16, 2008

Date(s) aerial images were photographed: Data not available.

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

Payne County, Oklahoma (OK119)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
3	Coyle loam, 3 to 5 percent slopes	7.6	5.9%
45	Renfrow silt loam, 1 to 3 percent slopes	3.5	2.7%
47	Renfrow loam, 3 to 5 percent slopes, eroded	32.8	25.3%
66	Masham silty clay loam, 5 to 20 percent slopes	16.9	13.0%
70	Zaneis loam, 3 to 5 percent slopes	0.1	0.1%
81	Huska silt loam, 1 to 3 percent slopes	38.0	29.3%
GAMD	Grainola-Ashport-Mulhall complex, 0 to 8 percent slopes	4.2	3.2%
KrdB	Kirkland silt loam, 1 to 3 percent slopes	22.6	17.4%
W	Water	1.2	1.0%
ZaHC	Zaneis-Huska complex, 1 to 5 percent slopes	2.8	2.1%
Totals for Area of Interest		**129.7**	**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.

Payne County, Oklahoma

3—Coyle loam, 3 to 5 percent slopes

Map Unit Setting

Elevation: 800 to 1,300 feet
Mean annual precipitation: 34 to 39 inches
Mean annual air temperature: 57 to 60 degrees F
Frost-free period: 200 to 215 days

Map Unit Composition

Coyle and similar soils: 75 percent
Minor components: 25 percent

Description of Coyle

Setting

Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy residuum weathered from sandstone

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.3 inches)

Interpretive groups

Land capability (nonirrigated): 3e
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Typical profile

0 to 12 inches: Loam
12 to 18 inches: Loam
18 to 32 inches: Clay loam
32 to 39 inches: Sandy clay loam
39 to 45 inches: Bedrock

Minor Components

Huska

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Slickspot PE 44-64 (R080AY091OK)

Grainola

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Renfrow

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Mulhall

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Concave
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Chickasha

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

45—Renfrow silt loam, 1 to 3 percent slopes

Map Unit Setting

Elevation: 800 to 1,300 feet
Mean annual precipitation: 34 to 39 inches
Mean annual air temperature: 57 to 60 degrees F
Frost-free period: 200 to 215 days

Map Unit Composition

Renfrow and similar soils: 80 percent
Minor components: 20 percent

Description of Renfrow

Setting

Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex

Across-slope shape: Linear
Parent material: Clayey residuum weathered from shale

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): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: High (about 10.7 inches)

Interpretive groups

Land capability (nonirrigated): 2e
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Typical profile

0 to 9 inches: Silt loam
9 to 16 inches: Silty clay loam
16 to 31 inches: Clay
31 to 80 inches: Clay

Minor Components

Bethany

Percent of map unit: 5 percent
Landform: Plains on paleoterraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Kirkland

Percent of map unit: 5 percent
Landform: Plains on paleoterraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Grainola

Percent of map unit: 3 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Huska

Percent of map unit: 3 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex

Ecological site: Slickspot PE 44-64 (R080AY091OK)

Coyle

Percent of map unit: 2 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Zaneis

Percent of map unit: 2 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

47—Renfrow loam, 3 to 5 percent slopes, eroded

Map Unit Setting

Elevation: 800 to 1,300 feet
Mean annual precipitation: 34 to 39 inches
Mean annual air temperature: 57 to 60 degrees F
Frost-free period: 200 to 215 days

Map Unit Composition

Renfrow, eroded, and similar soils: 75 percent
Minor components: 25 percent

Description of Renfrow, Eroded

Setting

Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey residuum weathered from shale

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): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: High (about 10.4 inches)

Interpretive groups

Land capability (nonirrigated): 3e
Ecological site: Eroded Claypan Prairie (North) PE 44-64 (R080AY810OK)

Typical profile

0 to 6 inches: Loam
6 to 35 inches: Silty clay
35 to 73 inches: Silty clay

Minor Components

Zaneis, eroded

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Eroded Loamy Prairie PE 44-64 (R080AY856OK)

Huska, eroded

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Eroded Slickspot PE 44-64 (R080AY891OK)

Mulhall, eroded

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Concave
Ecological site: Eroded Loamy Prairie PE 44-64 (R080AY856OK)

Kirkland, eroded

Percent of map unit: 5 percent
Landform: Plains on paleoterraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: Eroded Claypan Prairie (North) PE 44-64 (R080AY810OK)

Grainola, eroded

Percent of map unit: 3 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Eroded Claypan Prairie (North) PE 44-64 (R080AY810OK)

Coyle, eroded

Percent of map unit: 2 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex

Ecological site: Eroded Loamy Prairie PE 44-64 (R080AY856OK)

66—Masham silty clay loam, 5 to 20 percent slopes

Map Unit Setting

Elevation: 800 to 1,300 feet
Mean annual precipitation: 34 to 39 inches
Mean annual air temperature: 57 to 60 degrees F
Frost-free period: 200 to 215 days

Map Unit Composition

Masham and similar soils: 85 percent
Minor components: 15 percent

Description of Masham

Setting

Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous clayey residuum weathered from shale

Properties and qualities

Slope: 5 to 20 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well 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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability (nonirrigated): 6e
Ecological site: Shallow Clay Prairie PE 44-64 (R080AY080OK)

Typical profile

0 to 5 inches: Silty clay loam
5 to 16 inches: Silty clay
16 to 40 inches: Bedrock

Minor Components

Grainola

Percent of map unit: 8 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex

Across-slope shape: Convex
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Lucien

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Shallow Prairie PE 44-64 (R080AY083OK)

Ashport

Percent of map unit: 2 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Loamy Bottomland PE 44-64 (R080AY050OK)

70—Zaneis loam, 3 to 5 percent slopes

Map Unit Setting

Elevation: 800 to 1,300 feet
Mean annual precipitation: 34 to 39 inches
Mean annual air temperature: 57 to 60 degrees F
Frost-free period: 200 to 215 days

Map Unit Composition

Zaneis and similar soils: 75 percent
Minor components: 25 percent

Description of Zaneis

Setting

Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy residuum weathered from sandstone and shale

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.0 inches)

Interpretive groups

Land capability (nonirrigated): 3e
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Typical profile

0 to 11 inches: Loam
11 to 16 inches: Loam
16 to 32 inches: Clay loam
32 to 42 inches: Clay loam
42 to 52 inches: Bedrock

Minor Components

Coyle

Percent of map unit: 6 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Chickasha

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Mulhall

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Concave
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Renfrow

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Huska

Percent of map unit: 4 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Slickspot PE 44-64 (R080AY091OK)

81—Huska silt loam, 1 to 3 percent slopes

Map Unit Setting

Elevation: 800 to 1,300 feet
Mean annual precipitation: 34 to 39 inches
Mean annual air temperature: 57 to 60 degrees F
Frost-free period: 200 to 215 days

Map Unit Composition

Huska and similar soils: 80 percent
Minor components: 20 percent

Description of Huska

Setting

Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Saline clayey residuum weathered from sandstone and shale

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Moderately well 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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to moderately saline (2.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 55.0
Available water capacity: Low (about 4.6 inches)

Interpretive groups

Land capability (nonirrigated): 6s
Ecological site: Slickspot PE 44-64 (R080AY091OK)

Typical profile

0 to 9 inches: Silt loam
9 to 18 inches: Silty clay
18 to 25 inches: Silty clay loam
25 to 50 inches: Clay
50 to 55 inches: Bedrock

Minor Components

Doolin

Percent of map unit: 4 percent
Landform: Plains on paleoterraces
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Seminole

Percent of map unit: 4 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Zaneis

Percent of map unit: 3 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Renfrow

Percent of map unit: 3 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Coyle

Percent of map unit: 2 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Grainola

Percent of map unit: 2 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Agra

Percent of map unit: 2 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

GAMD—Grainola-Ashport-Mulhall complex, 0 to 8 percent slopes

Map Unit Setting

Elevation: 800 to 1,300 feet
Mean annual precipitation: 34 to 39 inches
Mean annual air temperature: 57 to 60 degrees F
Frost-free period: 200 to 215 days

Map Unit Composition

Grainola and similar soils: 26 percent
Ashport and similar soils: 21 percent
Mulhall and similar soils: 20 percent
Minor components: 33 percent

Description of Grainola

Setting

Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous clayey residuum weathered from shale

Properties and qualities

Slope: 5 to 8 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water capacity: Low (about 5.7 inches)

Interpretive groups

Land capability (nonirrigated): 4e
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Typical profile

0 to 4 inches: Silty clay loam
4 to 14 inches: Silty clay
14 to 36 inches: Silty clay
36 to 40 inches: Bedrock

Description of Ashport

Setting

Landform: Valley flats on drainageways
Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Fine-silty alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 41 to 79 inches to densic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: High (about 9.1 inches)

Interpretive groups

Land capability (nonirrigated): 5w
Ecological site: Loamy Bottomland PE 44-64 (R080AY050OK)

Typical profile

0 to 13 inches: Silty clay loam
13 to 32 inches: Silt loam
32 to 40 inches: Silt loam
40 to 46 inches: Silty clay loam
46 to 58 inches: Silty clay

Description of Mulhall

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Loamy colluvium over silty residuum weathered from shale

Properties and qualities

Slope: 5 to 8 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 capacity: High (about 9.4 inches)

Interpretive groups

Land capability (nonirrigated): 4e
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Typical profile

0 to 10 inches: Loam
10 to 14 inches: Loam
14 to 23 inches: Clay loam
23 to 33 inches: Clay loam
33 to 42 inches: Clay loam

42 to 56 inches: Clay loam
56 to 80 inches: Clay loam

Minor Components

Kingfisher

Percent of map unit: 10 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Lucien

Percent of map unit: 9 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Shallow Prairie PE 44-64 (R080AY083OK)

Renfrow

Percent of map unit: 7 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Pawhuska

Percent of map unit: 7 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Slickspot PE 44-64 (R080AY091OK)

KrdB—Kirkland silt loam, 1 to 3 percent slopes

Map Unit Setting

Elevation: 700 to 1,300 feet
Mean annual precipitation: 33 to 40 inches
Mean annual air temperature: 57 to 60 degrees F
Frost-free period: 200 to 215 days

Map Unit Composition

Kirkland and similar soils: 80 percent
Minor components: 20 percent

Description of Kirkland

Setting

Landform: Plains on paleoterraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey alluvium over clayey residuum weathered from calcareous shale

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: 60 to 99 inches to paralithic bedrock
Drainage class: Well 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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: Moderate (about 8.3 inches)

Interpretive groups

Land capability (nonirrigated): 3e
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Typical profile

0 to 7 inches: Silt loam
7 to 14 inches: Silty clay
14 to 33 inches: Silty clay
33 to 61 inches: Silty clay loam
61 to 80 inches: Bedrock

Minor Components

Bethany

Percent of map unit: 10 percent
Landform: Plains on paleoterraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Renfrow

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: Claypan Prairie (North) PE 44-64 (R080AY010OK)

Pawhuska

Percent of map unit: 5 percent
Landform: Hillslopes on hills

Landform position (two-dimensional): Summit
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Slickspot PE 44-64 (R080AY091OK)

W—Water

Map Unit Setting

Elevation: 700 to 1,300 feet
Mean annual precipitation: 33 to 40 inches
Mean annual air temperature: 57 to 60 degrees F
Frost-free period: 200 to 215 days

Map Unit Composition

Water: 100 percent

Description of Water

Setting

Landform: Valleys

Interpretive groups

Land capability (nonirrigated): 8w

Typical profile

0 to 80 inches: Water

ZaHC—Zaneis-Huska complex, 1 to 5 percent slopes

Map Unit Setting

Elevation: 800 to 1,300 feet
Mean annual precipitation: 34 to 39 inches
Mean annual air temperature: 57 to 60 degrees F
Frost-free period: 200 to 215 days

Map Unit Composition

Zaneis and similar soils: 54 percent
Huska and similar soils: 32 percent
Minor components: 14 percent

Description of Zaneis

Setting

Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex

Parent material: Loamy residuum weathered from sandstone and shale

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.5 inches)

Interpretive groups

Land capability (nonirrigated): 3e
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

Typical profile

0 to 7 inches: Loam
7 to 10 inches: Loam
10 to 28 inches: Clay loam
28 to 38 inches: Clay loam
38 to 46 inches: Clay loam
46 to 50 inches: Bedrock

Description of Huska

Setting

Landform: Hillslopes on hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Saline clayey residuum weathered from sandstone and shale

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Moderately well 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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to moderately saline (2.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 55.0
Available water capacity: Low (about 4.9 inches)

Interpretive groups

Land capability (nonirrigated): 6s
Ecological site: Slickspot PE 44-64 (R080AY091OK)

Typical profile

0 to 8 inches: Loam
8 to 20 inches: Clay
20 to 42 inches: Clay loam
42 to 54 inches: Clay loam

54 to 60 inches: Bedrock

Minor Components

Coyle

Percent of map unit: 14 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Loamy Prairie PE 44-64 (R080AY056OK)

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